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CALIFORNIA STATE BOARD OF TRADE

PUBLICATIONS

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1st

REPORT

BY

GEN'L N. P. CHIPMAN,

Chairman Committee on Industrial Resources of the State,

TO

THE CALIFORNIA

STATE BOARD OF TRADE

1890

1891.

Exhibit Room,

603 Market Street, SAN FRANCISCO.

HON. EUGENE J. GREGORY,
PRESIDENT.

E. W. MASLIN,
MANAGER.

CORRESPONDENCE SOLICITED.

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FRUIT SHIPMENTS.

RED BLUFF, Cal., May 18, 1891.

EUGENE J. GREGORY, President State Board of Trade—*Dear Sir:* After much investigation, and with as accurate data as are obtainable, I have prepared the following tables, showing fruit exports for 1890, comparative value of fruit and wheat exports for 1890, comparative value of fruits exported from Northern California and Southern California in 1890. These tables present results never before brought into comparison, and should prove of interest to the public, notably the comparative value of wheat and fruit exports, and the comparative value of fruit exports from North and South California. The value is taken at the farm or orchard, or first point of shipment.

It will be noted that green deciduous fruits are nearly all shipped from the North; that shipments of dried fruit from the North exceed those from the South over eleven million pounds; that five-eighths of the raisins go from the North; that nearly all the canned goods go from the North; that of the wine and brandy,

TABLE FIRST.

Fruit exports by Southern Pacific System:—

Place.	Dried Fruit.	Deciduous Fruit.	Citrus Fruit.	Raisins.	Canned Goods.	Nuts.
San Francisco...	4,768,630	75,520	144,500	897,620	45,630,140	181,320
Oakland............	856,020	1,871,930	....	20,050	316,240	....
Sacramento.......	8,275,920	46,865,220	....	3,797,290	10,276,640	103,170
San Jose...........	13,962,210	12,185,020	....	185,440	16,654,780	30,170
Stockton...........	8,534,350	5,040,634	....	20,148,590	1,112,560	20,880
Marysville.........	2,131,770	992,510	20,850	546,340	3,422,660	21,140
Los Angeles......	2,256,050	1,053,290	7,477,120	429,240	601,960	1,201,430
Colton..............	2,596,960	....	10,801,850	1,345,860	2,106,970	16,290
Total.........	43,377,910	68,084.124	18,444,320	27,370,330	80,121,950	1,574,230

Total by Southern Pacific Company:—

Deciduous, pounds.............	220,528,540	Citrus, pounds.....................	18,444,370
" tons....................	110,264	" tons.........................	9,222
" car loads............	11,026	" car loads..................	922

Total cars of all kinds.. 11,948

Shipped by the Santa Fe system, as shown by the *Annual Times* for January, 1891:—

Places.	Oranges, pounds.	Dried Fruit, pounds.	Raisins, pounds.
All places...............................	49,975,000	....	....
Los Angeles County..............	....	10,036,360	250,000
Orange County......................	....	2,400,000	25,000
San Bernardino County.........	....	8,290,000	11,275,000
San Diego County.................	....	490,911	2,200,000
Total....................	49,975.000	21,217,271	13,750,000

Total by Santa Fe system:—

Deciduous, pounds	34,967,271	Citrus, pounds	49,975,000
" tons	17,483	" tons	24,987
" car loads	1,748	" car loads	2,498

Total car loads, all kinds, Southern Pacific Company	11,948
Total car loads, all kinds, Santa Fe system	4,246
Total pounds, all kinds, by both systems	323,915,181
Total car loads by both systems	16,194
Total cars for each day of the year	44

The whole would make a solid train of cars one hundred and twenty-three miles long.

Total car loads shipped in 1880	546
Excess in 1890 over 1880	15,648

TABLE SECOND.

Comparative value of fruit and wheat exports:—

Green deciduous fruits	68,084,124 lbs.	at 2½c	$1,702,103
Dried " "	64,595,181 "	" 12½c	8,074,397
Raisins	41,120,330 "	" 6¼c	2,570,020
Nuts	1,574,230 "	" 10c	157,423
Canned fruits	80,121,950 "	" 3c	2,403,658
Oranges	1,028,700 boxes,	at $1.75	1,796,025
Grapes, in wine	18,000,000 gallons,	" 15c	2,700,000
Grapes, in brandy	1,000,000 "	" 45c	4 0,000
Total value			$19,857,826

Wheat exports:—

Wheat	21,699,683 bushels.
Flour	5,910,555 "
Total	27,610,238 bushels, at 70c, $19,327,166

Excess value of fruit.....................$530,660

TABLE THIRD.

Comparative value of fruit exports from North and South California.

	North.		South.	
Dried	38,524,900 lbs	$4,815,613	26,070,281 lbs	$3,258,785
Green	67,030,834 "	1,675,771	1,053,290 "	26,332
Raisins	25,595,330 "	1,599,705	15,525,000 "	970,312
Canned	77,413,020 "	2,322,390	2,708,930 "	81,267
Nuts	356,510 "	35,651	1,217,730 "	121,772
Oranges		4,200		1,79 ,025
Wine	16,000,000 gals	2,400,000	2,000,000 gals	300,000
Brandy	800,000 "	360,000	200,000 "	70,000
Total, North		$13,213,333	Total, South	$6,644,493

eight-ninths go from the North; that nearly all the nuts, and, practically, all the oranges, go from the South. It will also be noted that the green deciduous fruits exported from the State about equal the value of oranges; that the dried fruits are more than four times the value of oranges; that our raisins have a value of nearly one million dollars more than oranges, and our canned goods over half a million more than oranges; that our wines and brandy have a value to the producer of one and a quarter million dollars more than oranges. Also, that the exports of deciduous fruits and nuts exceed exports of oranges by seventeen million dollars. It will also be noted that the value of the dried fruit shipped from the South is about double the value of her oranges; that the raisins of the South equal half the value of the oranges, and that the orange crop of the South is only about one-fourth in value of her whole fruit crop.

It is a significant fact that, while our wheat output has not materially increased from 1880 to 1890, our fruit output has increased more than thirty times, and is growing with great rapidity. While the showing here made still keeps California in the front rank of wheat-growing States, being third in rank, it demonstrates the great advantages of the State as a fruit-producing country. In 1880 our exports of fruit brought us, probably, at the rate I now figure the farm value of fruit, about $700,000, while they now amount to about $20,000,000. This wonderful result has brought with it what is above all computation, to wit, the demonstration that fruit-growing in this State is very profitable, and is almost absolutely safe from frosts and other drawbacks, and has practically no limit. Ten years have taught us also that we may resort to lands for fruit-growing, and quadruple our present output, and still retain our primacy as a wheat and barley and wool-producing State.

In closing, I desire to say that my data as to fruit shipments are given by the transportation companies, and the points of shipments I could not change; but they are misleading in this, that they are terminal points and do not give place of production. For example, Fresno does not show as a point of shipment, and yet it is the chief raisin-producing region; nor does Riverside, and it is the center of citrus fruits. My data as to wines and brandy are furnished by Mr. Clarence J. Wetmore, Secretary and Manager of the State Board of Viticulture. The wine and brandy output I give as a whole, not being able to obtain exports separately. My data as to wheat I get from the San Francisco Produce Exchange, and as to average price, from Mr. G. W. McNear. The wheat exports I am satisfied included grain of previous year, because the whole crop of 1890, as given by the Department of Agriculture, was only two million bushels more than the exports, and that would not furnish bread and seed. My prices given to fruit are based upon my own experience and that of others in the business. They may be a little above or below, but as a whole they cannot be shaken much. The tables furnish valuable data for reflection and thought. The disproportion of fruit products North and South, on its face, is encouraging to the North. But eight counties South, with a population of 223,836, received $6,444,493, or about $29.68 *per capita*, while the balance of the State, with 948,284 population, received $13,213,333, or about $13.45 *per capita*.

It must be remembered, however, that of the population residing at the North, probably more than one-half reside in the cities and mountain regions. In speaking of the North and South in this report, I refer to the Tehachepi Mountains as the dividing line. Probably the proportion of the two regions actually engaged in fruit culture will not much differ. The bulk of the wheat produced in the State comes from the North. It would have greatly added to the value of this report had I been able to obtain the acreage of fruit and the acreage of wheat. From the reports of the State Board of Equalization I am able to state the wheat acreage for 1890 was 2,451,910 acres.

From the most reliable sources, I estimate the acres of fruit trees and vines in bearing in the year 1890 not to exceed 250,000. I have made many calculations based upon the results of particular localities where accurate data have been obtainable, and the result of my investigations leads me to believe that the product of fruit lands and wheat lands bears a proportion of more than ten to one; that is, one acre of fruit land will produce more than the equivalent of ten acres of wheat.

N. P. Chipman,

Chairman Committee on Industrial Resources of the State.

Since preparing the foregoing report, I have found that very considerable amount in value of fruits, such as raisins and dried fruits and canned fruit, have been shipped from the port of San Francisco to foreign countries, which have not gone into my estimate of shipments by rail. The exact or approximate amount, however, I have not been able to obtain. I have also received from Mr. C. F. Smurr, General Freight Agent of the Southern Pacific Company, a very valuable table, showing foreign imports, California production and Eastern shipments of the same, as to prunes, figs, raisins, and almonds. I append it to my report. It is as follows:—

PRUNES, FIGS, RAISINS, ALMONDS.

Foreign Imports, *vs.* California Production and Shipments:—

	Foreign Imports, by years ending June 30.		California Production, by years, ending Dec. 81.	Through East-bound Shipments from California, by years, ending Dec. 31.
		PRUNES.		
Year—	Pounds.	Value.	Pounds.	Pounds.
1885	57,631,820	$2,147,505 00		
1886	64,995,545	2,026,595 00	2,000,000	
1887	92,032,625	2,999,648 00	1,825,000	
1888	70,626,027	2,197,150 00	2,100,000	
1889	46,154,825	1,423,304 00	15,200,000	
1890	58,093,410	1,789,176 00	12,200,000	10,224,700
1891				
		FIGS.		
Year—	Pounds.	Value.	Pounds.	Pounds.
1885	7,770,178	$510,732 00		
1886	7,233,070	505,876 00		
1887	8,724,583	487,602 00	90,000	
1888	10,058,053	496,755 00	75,000	
1889	10,649,049	482,759 00	100,000	
1890	10,284,998	456,567 00	200,000	42,[illegible]
1891				
		RAISINS.		
Year—	Pounds.	Value.	Pounds.	Pounds.
1885	38,397,787	$2,661,699 00	7,000,500	6,203,340
1886	40,387,946	2,885,123 00	12,000,000	12,970,800
1887	40,673,288	2,281,981 00	16,000,000	16,170,000
1888	40,476,473	2,070,120 00	18,300,000	14,803,365
1889	35,091,139	1,736,786 00	19,000,000	17,570,485
1890	36,914,330	1,997,103 00	30,000,000	29,108,295
1 91				
		ALMONDS.		
Year—	Pounds.	Value.	Pounds.	Pounds.
1885	4,732,269	$507,946 00		
1886	5,822,733	647,077 00		
1887	5,482,363	597,476 00	500,000	
1888	5,747,957	631,748 00	450,000	
1889	5,545,400	595,227 00	500,000	
1890	5,715,858	813,278 00	200,000	198,067

I beg also to append to the data furnished by Mr. Smurr, an extract from a letter written by the Hon. Jeremiah Rusk, Secretary of the Department of Agriculture, who recently visited California, and made observations as to the resources of our State. He writes:—

"No man can form anything like a correct estimate of the wonderful resources, the marvelous productiveness and the inexhaustible wealth of California unless he visits this continent between the mountains and the sea and investigates, sees, touches and tastes for himself. I, perhaps, as an officer of the government, have had more material of an authentic nature from which to form an idea of the mineral and agricultural wealth of California, without seeing it, than almost any other man in the East during the past few years, and I am now ready to confess that, with all the information at my command, my trip through the State has been a succession of great surprises.

"I return from this visit, hurried as it is, wonderfully benefited and prepared to intelligently meet and dispose of many vexed questions arising in the work of my department, having received knowledge applicable to the cases from your people. The Eastern man still looks upon California as the land of gold, for so long has California been associated in our minds with the production of the precious metals that even now her importance as an agricultural State is but little understood by most of our people; that it is the third State in the Union in wheat production; that it includes within its borders some of the most prosperous farmers in the United States; that it owes to agriculture the larger part of that wonderful increase in its taxable values, which bring them up at this time to the vast sum of more than $300,000,000;* that from San Francisco alone there is shipped abroad over 20 per cent of the total flour and wheat exports of the United States; that it is the second State in number of sheep, with an average annual wool export of 35,000,000 pounds; that last year over $10,000,000 worth of fruits was shipped to the Eastern markets [The above report shows that the shipments of fruit by rail had a farm value of about $20,000,000.—N. P. C.]; that the value of its vineyards alone aggregates $86,000,000, and that all this agricultural wealth is produced from a comparatively small portion of the State, a State in which the Land Office reports nearly 54,000,000 acres still open to settlement. These facts, I say, are but little known to the majority of our people, and but few, even of those who know them, realize their full meaning. To the Eastern man who has tilled the farm of twenty or forty acres that his father and his father's father tilled before him, the farms of this great State are as the legends of fairy-land, and when told that with the same energy he expends on his forty acres, he can farm in California four times forty acres, he becomes incredulous.

"Again, the Eastern farmer, both from training, tradition and the nature of his environments, year after year raises the same crops and knows only the wheat, oats, rye, barley and potatoes, with a smattering of garden truck for his own use, and perhaps an acre of orchard, generally of pears, apples and cherries. He cannot imagine such farms as I have seen in this State. The physical conformation of California, with 700 miles of seaboard to the west, a vast mountain chain on the east, and embracing between the mountains and the seaboard altitudes, combined with the ocean currents and winds, makes a wonderful variety of climatic conditions and renders possible almost every variety of production under the sun. The people have not been slow in taking advantage of the opportunities presented, and to-day California is sending into the world everything almost in the way of necessities and luxuries that man needs and that mother earth provides."

---

*The Secretary must refer to the value of farming lands. The total assessment of the State for 1890 was as follows:—

Real estate, other than city and town lots	$388,440,058	
Improvements on same	53,951,420	$442,391,478
City and town lots	$295,229,614	
Improvements on same	152,993,007	448,222,621
Personal property		143,733,183
Money and solvent credits		25,226,970
Railroad assessments		40,198,652
Total		$1,099,772,904

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ANNUAL REPORT

TO THE

CALIFORNIA STATE BOARD OF TRADE,

SHOWING

Shipments of Fruits, Wine and Brandy for 1891,

BY

GEN. N. P. CHIPMAN,

CHAIRMAN, COMMITTEE ON INDUSTRIAL RESOURCES
OF THE STATE.

E. W. MASLIN,
Secretary and Gen'l Manager.

EUGENE J. GREGORY,
President.

ANNUAL REPORT OF COMMITTEE

ON THE

INDUSTRIAL RESOURCES OF THE STATE,

SHOWING SHIPMENTS OF FRUITS FOR 1891.

RED BLUFF, California, March 8th, 1892.

HON. EUGENE J. GREGORY, President State Board of Trade,
San Francisco, Cal.

Dear Sir:

I submit herewith report showing shipments from California of fruit, green, dried and canned, nuts and raisins, for the year 1891, and also shipments of wine and brandy.

FRUIT SHIPMENTS EAST BY SOUTHERN PACIFIC SYSTEM—1891.

Data furnished by MR. RICHARD GRAY, General Traffic Manager.

Place.	Deciduous Green Fruit. Pounds.	Citrus. Pounds.	Dried Fruit. Pounds.	Raisins. Pounds.	Nuts. Pounds.	Canned Fruits. Pounds.
San Francisco	118,000	68,000	6,478,000	1,052,000	400,000	19,278.000
Oakland	1,388,000	....	588,000	44,000	34,000	1,680,000
San Jose....	12,450,000	....	24,370,000	192,000	20,000	11,292,000
Stockton	5,628,000	....	5,282,000	29.398,000	4,000	1,224,000
Sacramento..	55,542,000	10,000	14,334,000	4,402,000	412,000	8,818,000
Marysville...	2,140,000	20,000	4,616,000	396,000	30,000	2,604,000
Total North of Tehachipi.	77,266,000	98,000	55,668,000	35,484,000	900,000	44,896,000
Los Angeles.	1,556,000	15,930,000	858,000	830,000	1,130,000	804,000
Colton	....	14,976,000	1,022,000	1,046,000	20,000	1,340,000
Total South of Tehachipi.	1,556,000	30,906,000	1,880,000	1,876,000	1,150,000	2,144,000
Total by S. P. Co...	78,822,000	31,004,000	57,548,000	37,360,000	2,050,000	47,040,000

FRUIT SHIPMENTS EAST BY SOUTHERN CALIFORNIA RAILWAY COMPANY.—1891.

(Santa Fe System.)

Data furnished by MR. H. C. WHITEHEAD, Auditor.

Place, County.	Deciduous Green Fruits Peaches, Apples, Apricots and Berries. Pounds.	Citrus. Pounds.	Dried Fruit. Pounds.	Raisins. Pounds.	Nuts. Pounds.	Canned Fruits. Pounds.
Los Angeles.	9,823,370	21,883,980	2.093,340	5,220	377,000	1,833,440
Orange......	1,682,140	5,557,770	395,180	24,000	172,000	41,900
San Bernardino	7,368,000	34,802,880	3,498,100	5,309,000	24,560	532,150
San Diego...	984,590	614,170	1,555,600	2,256,630	....	119,190
Total South of Tehachipi.	19,858,100	62,858,800	7,542,220	7,594,850	573,560	2,526,680

WINE AND BRANDY.

Through the courtesy of Mr. Clarence J. Wetmore, Secretary and Manager of the Board of Viticultural Commissioners, I give the shipments of wine and brandy as follows :

	WINE.	BRANDY.
By rail.—	30,226 cases, or 5,621,179 gallons.	1,225 cases, or 305,886 gallons.
By sea.—	14,289 " " 5,492,850 "	414 " " 493,726 "
Total..........	11,114,029 gallons.	799,612 gallons.

I stated on the same authority for 1890 that the total output was as follows :

Wine....................	18,000,000	gallons.
Brandy.................	1,000,000	"

The amount on hand, not shipped, or consumed at home, will probably account for the difference.

At Vina, Tehama County alone, there are about 800,000 gallons of brandy in bonded warehouse.

SUMMARY OF FRUIT SHIPMENTS BY RAIL.—1891.

(Excluding Wine and Brandy.)

	Southern Pacific Co. Pounds.	Santa Fe System. Pounds.	Total Pounds.	Total Cars.
Green Deciduous.....	78,822,000	19,858,100	98,680,100	4,934 0
Citrus...............	31,004,000	62,858,800	93,862,800	4,693.1
Dried Fruit..........	57,548,000	7,542,220	65,090,220	3,254.5
Raisins..............	37,360,000	7,594,850	44,954,850	2,247.7
Nuts.................	2,050,000	573,560	2,623,560	131.1
Canned.............	47,040,000	2,526,680	49,566,680	2,478.3
Total.............	253,824,000	100,954,210	354.778,210	17,738.7
Total carloads.....	12,691	5.047	17,738	

COMPARATIVE TABLE OF SHIPMENTS BY RAIL.—1890 AND 1891.

	1890. Pounds.	1891. Pounds.	Gain. Pounds.	Loss. Pounds.
Green Deciduous.	68,084,124	98,680,100	30,595,976	....
Citrus..........	68,419,370	93,862,800	25,443.430	....
Dried Fruits.....	64,595,181	65,090,220	495,039	....
Raisins.........	41,120,330	44.954,850	3,834.520	....
Nuts..........	1,574,230	2,623.560	1,049,330	....
Canned Fruits...	80,121,950	49,566,680	....	30,555,270
	323,915,185	354,778,210	61,418,295	30,555,270
Carloads......	16,195	17,738	3,070 Net gain 1,543	1,527

Wine and brandy by rail, carloads, 1891.................	2,968
Total carloads, fruit, wine and brandy, 1891.............	20,706
Total carloads, fruit, excluding wine and brandy, in 1880 were...	546

Comparative Shipments from North and South California.—1891.

	From North.	From South.
	Pounds.	Pounds.
Green deciduous	77,266,000	21,414,100
Dried	55,668,000	9,422,220
Raisins	35,484,000	9,470,850
Nuts	900,000	1,723,560
Canned	44,896,000	4,670,680
Deciduous.—Total by rail	214,214,000	46,701,410
Total by sea	19,087,214	
	233,301,214	
Citrus by rail	98,000	93,764,800
Total by sea and rail	229,535,440	140,466,210

See Exhibit B for shipment by sea.

About 85 per cent. of our deciduous fruit went from Northern California, while practically all the citrus fruits went from Southern California.

The gain of 1543 carloads in all fruit shipments combined, excluding wine and brandy, is less than the gain in green and citrus fruits combined, which was 2801 carloads.

But we fell off in canned fruit shipped by rail over 1527 carloads, and excluding shipments by sea, 776 carloads.

The lesson of these figures is an important one. If this fruit had gone to the canners at the usual prices, it would have relieved the necessity of excessive green fruit shipments at smaller profits. But the canners could not contract to sell sufficient of their goods at remunerative prices in the East and this arose from the large fruit crop East; and I think, from the further reason, that in 1890 our prices were so high that only the luxuriant rich could buy, and this drove the general consumers to resort to substitutions in 1891.

This Board has made commendable efforts to extend our dried fruit and canned fruit markets into the United Kingdom, and if these efforts had been seconded or aided adequately by the fruit growers and dealers, we would have been prepared by another year to extend our markets to other countries than our Eastern States, and where prices would be even more favorable.

Our fruit growers must give more intelligent attention to the markets, or they must expect recurrences of 1891.

There is no kind of doubt that the United Kingdom and the continent would considerably increase the consumption, and together with our own markets, take all the fruit we are likely to grow for many years, and I think always; but we must introduce and push our goods, if we would sell them. We had to seek even our own Eastern markets, and push ourselves into them; and so we must elsewhere.

CANNED FRUITS.

In 1890 we shipped East, by rail, 80,121,950 pounds canned fruits.

In 1891 we shipped East, by rail, 49,566,680 pounds canned fruits.

Showing a decrease of 30,555,270 pounds canned fruit.

Nearly 35 per cent decrease, or 1,527 carloads.

This is accounted for by the large apple and peach crop East, and the large crop of small fruits, which were more generally canned than before, and took the place of our goods, as I have already suggested, partly because of the high prices in 1890.

We have, however, recouped this loss to considerable extent by shipments by sea, which, expressed in pounds, amounted to 15,223,440, or 761 carloads. Of this, 172,073 cases went to England, none went to France, and only eight cases to Germany.

DRIED FRUITS.

In 1890 we shipped from the State, by rail, of dried fruit	64,595,181 lbs.
In 1891 we shipped from the State, by rail, of dried fruit	65,090,220 lbs.
A gain of	495,039 lbs.

or only 24 carloads.

This is a small gain, but is accounted for by the same condition, as already explained, that existed East as to fruits, and by a very considerable falling off in the South.

The North, in fact, gained about 857 carloads, while the South lost about 926 carloads.

I account for this by the greater development of the orange industry, at the sacrifice of deciduous fruits; and also by the fact that the greater part of the increase in 1891, of green deciduous fruits, went from the South.

Green Fruits.

In 1890 we shipped of green fruit by rail, (other than oranges)............................68,084,124 lbs.
In 1891 we shipped of green fruit by rail, (other than oranges)............................98,680,100 "
Which shows a gain of.......................30,595,976 "

or, expressed in carloads, the gain is over 1529 car loads, an increase of nearly 50 per cent.

Prunes.

In 1890 we shipped of prunes, according to the figures compiled by Mr. C. F. Smurr, of the Southern Pacific Company,................ 10,224,700 lbs.
In 1891, according to the figures furnished me by Mr. Richard Gray, General Traffic Manager of the S. P. Co., we shipped over his road 23,144,000 "
An increase of..............................12,919,300 "
Or over 645 car loads.
Being over 100 per cent increase.

23,034,000 pounds of these prunes went from Northern California, and only 110,000 pounds went from Southern California.

The Santa Fe System no doubt shipped prunes, but the amount has gone into the item of dried fruits, of all kinds of which this report shows a total, including I presume, peaches, apricots, pears, apples, nectarines and prunes, in all 13,424,000 pounds.

Of the prunes shipped from the State by the S. P. Co., there went

From San Jose alone................	17,580,000	lbs.
From Sacramento,..................	4,076,000	"
From Marysville,....................	462 000	"
From San Francisco................	534,000	"
From all other parts of the State....	492,000	"
Total....................	23,144,000	"

From an examination of the totals of dried fruit shipments which in the tables include prunes, it will be observed that there was a falling off of dried fruit other than prunes. Our gain in dried fruit for 1891 was only a little over 24 car loads, but we gained in prunes alone, as above shown, 645 car loads. We, therefore, lost in dried peaches, apricots, nectarines and other fruits that went in some other form.

NUTS.

In 1890 we shipped of nuts	1,574,230 lbs.
In 1891 we shipped of nuts	2,623,560 "
Showing a gain of	1,049,330 "

Over 52 carloads.

All but 900,000 pounds of these went from the South.

Mr. Smurr gave the output of almonds for 1890 as	198,067 lbs.
Mr. Gray reports as shipped by his road in 1891	572,000 "
Showing a gain of	373,000 "
Of these there were shipped from the South	26,000 "

These figures show the distribution of nut trees in the State to be, of almonds, about all in the North, and nearly all the walnuts in the South.

Almond planting has been very heavy in the North this year. For some time trees could not be obtained in quantity at any price.

RAISINS.

The raisin industry has increased since 1890 in the North, but seems to have fallen off in the South.

In 1890 our shipments from the State were	41,120,330 lbs.
In 1891 " " " " "	44,954,850 "
Showing an increase of	3,834,520 "

Or over 196 carloads.

Being an increase of nearly 10 per cent. in one year. This gain is substantially all in the Fresno District.

In 1890 the shipments from the South were	15,525,000 lbs.
In 1891 " " " " "	9,470,850 "
Showing a decrease of	6,054,150 "

I have seen no explanation for this falling off.

FIGS.

Mr. Smurr reported the shipments of figs to be for 1890	42,950 lbs.
Mr. Gray reports the shipments for 1891 as	50,000 “
A gain of only	7,050 lbs.

The slow development of this industry is quite remarkable, in view of the fact that we make a delightful fig that brings good prices. In the face of an importation of 11,000,000 pounds, it would seem that greater attention should be given to this healthful and agreeable fruit. It should be observed, however, that we supply our own home consumption, and this is quite large.

OLIVES.

It is also quite remarkable that our olives and olive oil have not got into our list of exports, except by sea.

The adaptability of our soil and climate, from Shasta to San Diego, has been fully proven, and the large profits obtainable are thoroughly established.

I know the general impression is, that it requires eight or ten years to bring an orchard into profitable bearing; but there is nothing more misleading. By planting two or three-year-old trees, which we should always do, we can get a bearing orchard as soon as we can by planting prunes or Bartlett pears.

CITRUS FRUITS.

I append to this report a valuable table of shipments of citrus fruits from Southern California, compiled by Mr. Scipio Craig.

It shows the distribution of this very remunerative fruit crop throughout the South. It would add immensely to the literature on the subject of our fruit industries, and give a most convincing proof of the general distribution of trees, if a similar compilation were made as to all fruits for all parts of the State.

I find that the returns of the railroad companies very nearly agree with this table, but show greater shipments.

A summary of Mr. Craig's table shows as follows:

Shipped From	Boxes.	Cars.
Los Angeles County	632,071	2212
San Bernardino County	487,882	1708
Orange County	147,332	516
Ventura County	19,475	68
San Diego County	18,861	66
Santa Barbara County	6,478	23
Total	1,312,099	4593

In my Report for 1890 I showed the shipments to be 3420 cars. The gain over 1890, according to Mr. Craig, is 1173 cars. Mr. Craig's figures, however, are less than the figures given by the railroad companies, by 100 carloads.

The actual shipments of citrus fruits East, for 1891, were 4693 carloads, as shown by the railroad companies, which is a gain of 1273 carloads.

This is about 35 per cent. gain in one year, and shows very rapid increase.

In the North, the increase does not show by shipments East, for the reason that the home market absorbs so much more than the output. But the industry is in a hopeful condition at the points where plantings have been made in considerable areas. The plantations are yet young, but are steadily increasing.

The fruit-growing industry is increasing very rapidly; but a serious and ever present factor is the marketing of our products.

Our growers seem to be lending all their energies to produce new orchards, while only a few stop to consider the market. In the sense that wheat is an article of food, fruit is not; although it is fast becoming a necessity in well-to do families everywhere. Wheat will sell itself, and will stand long storage and long voyages, but fruit will not. The greatest needs at this moment to permanent success are intelligent and adequate methods to reach consumers. We already know that the people want our fruit; we don't yet know the best way to place it within their reach.

The transportation companies, I think, can be relied upon to aid in extending our markets. But we must go to them with intelligent exhibits of the business as a whole, and show to them the importance of maintaining it at profitable rates to the grower, and not constantly parade exceptional results of $500 and $1,000 an acre profit.

Such results are shown in different parts of the State in oranges, peaches, prunes, and other fruits ; the truth of which I do not question. But they represent results where only the most favorable conditions are present—good soil, good cultivation, good management, and intelligent handling throughout.

These are the misleading statements that destroy the arguments for lower freight rates. But we all know that they are wide from a true representation of the industry taken in its average throughout the State. Freight rates must be made upon data furnished by the experience of the average orchardists, and not from that of the orchardist who pursues a system of intensive cultivation and highly intelligent handling.

No reasonable man questions the maxim in transportation that costly goods must bear a greater burden than cheap commodities. Scoured wool, for example, may bear a greater burden than green fruit, for one pound is worth more than ten pounds of green fruit. If we can make $500 an acre profit at present freight rates in fruit raising, why should we complain when in one year's profit we get back more than the cost of the orchard ?

The truth is, that our orchardists are not making any such profits, and they should not if we are to have a healthy, steady growth of the industry, with increasing demand for large quantities of our fruit.

There is no agricultural product grown in great quantities anywhere on the globe that yields $1000 or $500 per acre profit. The reciprocal laws of production and consumption forbid any such gain.

Colonel Irish, in his report submitted last month, stated what I think is a fair, conservative expectation from fruit growing, to wit : One hundred dollars per acre profit ; and if he had put it at $50, he would have justified all we need claim to assure the profitableness of the business. Upon this basis, however, the transportation companies must yield to us the best possible terms as to rates. And this leads me to add a word more on this subject.

There is no doubt in my mind that a transportation company that can haul sugar for sixty cents a hundred from San Francisco to St. Louis, or asphaltum from Fresno to New York for even less, can haul fruit for less than $1.50 per hundred pounds, when the business requires it. But it will not be done so long as the transportation companies have reason to believe that fruit growers are making enormous profits at present rates.

The fruit growers have created for the transportation companies, in ten years, an annual tonnage of over 17,000 carloads of East-bound fruits, and there has been practically no freight displaced in doing this; it is substantially all gain to the railroad companies. In 1891 we raised the largest wheat crop for ten years.

So important a factor as this in railroad business cannot escape the observant men at the head of our railroad interests. They have shown this by reductions from $1,200 a car at the beginning to $300 a car to New York city — the present rate. I am satisfied, however, that the industry now requires still further concessions, and I am also satisfied that they can be obtained by an intelligent and business-like presentation of the needs of fruit growers.

We can give the railroad companies 30,000 carloads annually, if they will let us, and that in a very few years.

If we had maintained our shipments of canned fruit for 1890 during 1891, the increase would show for 1891 over 2,000 carloads. As the year was, we shipped of fruit, wine, and brandy 20,706 carloads.

I predict that our fruit shipments for 1892 will reach 20,000 carloads, and I would not be surprised if they went to 22,000 carloads; and with wine and brandy added we may reach 25,000 carloads.

The Sacramento *Record-Union*, in a recent review of the comparative cost of carrying, by water and by rail, showed that cheap railroad rates are always referable to the volume of business; and in calling attention to the fact that the rate has gone down from $1,200 per car to $300 per car in train loads, it said: "Double the tonnage of fruit export, and there will be a larger profit at $150 per car than the $300 rate now affords." Mr. Huntington has recently stated substantially the same.

Considering the source of this statement and its probable authority, I regard it as the most hopeful sign of substantial benefit to the fruit grower that has appeared in late years.

When the $300 rate was made our shipments were not over 10,000 cars annually; they are now nearly 18,000 of fruit alone, and in five years they will reach 30,000 cars. May we not hope that the rates will be made to meet the increase *pari passu* as it comes?

A half a cent a pound may mean success or failure as it is given or withheld. We must cheapen our prices to the consumer. To do this we must cheapen cost of production and transportation, and when that is done we cannot over-produce.

I think the persuasive law of mutual interest will before long bring into harmony these now somewhat conflicting interests, and with it will come widespread prosperity among California fruit growers. In that day we shall enjoy the full realization of the dream of Arcadian happiness for our people so delightfully portrayed by Col. Irish in his report to this Board at its last meeting.

I think I ought to add in conclusion, that the fruit industry of the State was never more hopeful than now. The best indication of its growth, and the faith of planters in its future, is that nursery stock has been high and has been sold down very close.

I doubt whether the plantings were more, following the high prices of fruit in 1890, than they have been this winter, following the comparatively low prices of 1891.

Beyond all question, the orchards of California, in their intelligent cultivation and handling, in their variety of production, in their early fruitage, in the quality and appearance of their fruit, in the healthfulness and permanency of their trees, and in the quantity of their yield, surpass those of all other countries on the globe.

It ought not to admit of doubt that in such a country fruit-growing must always be profitable.

N. P. Chipman,
Chairman of the Committee on the
Industrial Resources of the State.

ORANGE SHIPMENTS IN 1891, OF CROP OF 1890.

Exhibit A.

Statistics Collected by SCIPIO CRAIG, of "The Citrograph."

LOS ANGELES COUNTY.

Stations.		Boxes.
Alhambra		25,643
Aurant		336
Azusa		11,058
Brookhurst		5,198
Chapman's		24,971
Claremont		325
Dodsworth		13,887
Downey		11,049
Duarte		37,828
Fernando		704
Fulton Wells		2,399
Glendora		8,360
Inglewood		6,753
Ivy		328
Lamanda Park		38,642
Lordsburg		4
Los Angeles		92,728
Los Nietos		1,512
Monrovia		11,990
Nadeau Park		936
Norwalk		854
Pasadena		65,123
Pomona	18,692	
North Pomona	4,065	—22,758
Puente		2,100
Redondo		297
Rivera		24,540
San Gabriel		66,681
Santa Anita		6,420
Santa Fé Springs		2,457
Savanna		25,177
Sepulveda		1,826
Slawson		2,502
South Pasadena		1,934
Spadra		975
Tropico		2,582
University		160
Vernon		1,231
Vernondale		45,280

Stations.		Boxes.
West Glendale		323
Whittier		15,097
Winthrop		49,183
Total		632,071

Cars, 2,212.

SAN BERNARDINO COUNTY.

Colton		14,537
Etiwanda		20
North Cucamongo		682
Ontario	1,463	
North Ontario	2,179—	3,642
Rialto		2
Riverside	266,192	
Arlington	30,876	
Casa Blanca	126,099	
East Riverside	19—	423,186
Redlands	23,455	
Drew	951	
Nahant	4,315	
Mound City	3,752	
Victoria	2—	32,475
San Bernardino (Highlands)		13,325
South Riverside		3
Total		487,882

Cars, 1,708.

ORANGE COUNTY.

Anaheim	39,310
Capistrano	633
Fullerton	3,278
Olive	14
Orange	20,005
San Juan	7
Santa Ana	62,997
Tustin	21,088
Total	147,332

Cars, 506.

VENTURA COUNTY.

Camulos	1,187
Santa Paula	15,028
Ventura	3,260
Total	19,475

Cars, 68.

SAN DIEGO COUNTY.

Stations.	Boxes.
Elsinore	8
Escondido	33
Fallbrook	5
National City	3,960
Oceanside	5
Perris	22
San Diego	13,754
Sorrento	331
Temecula	711
Vista	32
Total	18,861

Cars, 66.

SANTA BARBARA COUNTY.

Santa Barbara	6,478

Cars, 23.

SUMMARY.

	Boxes.	Cars.
Los Angeles county	632,071	2,212
San Bernardino county	487,882	1,708
Orange county	147,332	516
Ventura county	19,475	68
San Diego county	18,861	66
Santa Barbara county	6,478	23
Totals	1,312,099	4,593

The following is a summary of the yield in South California for the season of 1890, of crop of 1889. We compare only by counties, as there have been shipments made from so many new stations that comparisons cannot be made by stations:

	Boxes.	Cars.
San Bernardino county	487,000	1,705
Los Angeles county	198,695	781
Orange county	112,190	307
Ventura county	9,460	33
San Diego county	6,600	23
Totals	813,945	2,849

Exhibit B.

SHIPMENTS OF FRUIT BY SEA, 1891, TO ALL POINTS FROM SAN FRANCISCO.

Reported by S F. JOURNAL OF COMMERCE.

Where Shipped.	Canned Fruit.		Green Fruit.		Dried Fruit.		Raisins.		Nuts.		Olive Oil.	
	Cases.	Value Dollars.	Packages.	Dollars.	Pounds.	Dollars.	Packages.	Dollars.	Sacks.	Dollars.	Cases.	Dollars.
Amsterdam	86	331	20	18	700	86	8	35	4	22	1	10
Asiatic Russia	315	1,414	100	150	6,977	712	4	49	1	5	....	....
Australia	18,130	67,045	10,056	19,427	292,687	22,408	1,764	7,614	77	476	....	....
Batavia	1,131	4,816	....	....	....	....	....	....	....	....	....	....
Bombay	566	2,626	1	4	....	....	....	....	....	....	....	....
British Columbia	2,323	10,120	1,832	3,252	109,091	11,638	1,245	3,378	253	1,793	113	625
Corea	21	110	....	....	....	....	....	....	....	....	....	....
Calcutta	426	1,942	....	....	....	....	....	....	....	....	....	....
Central America	711	2,602	1,350	2,432	13,308	1,059	943	6,175	148	1,578	86	465
Chile	1,471	6,912	503	8,821	9,113	1,131	224	1,091	76	444	....	....
England	172,073	754,200	125	563	10,590	1,036	....	....	....	....	....	....
France	....	....	....	....	200	55	....	....	....	....	....	....
Germany	8	48	....	....	....	....	....	....	....	....	....	....
Hawaiian Islands	2,451	8,926	8,745	1,495	46,705	4,868	1,194	4,640	364	2,749	193	961
In Transit	....	....	20	50	....	....	....	....	....	...	19	213
Ireland	1,391	5,477	....	....	....	....	....	....	....	....	....	....
Japan	2,005	10,206	1,149	2,220	6,230	633	212	519	13	150	5	14
Kirkee	13	50	....	....	....	...	....	....	....	....	....	....
Cotta Bodja	45	165	....	....	....	....	....	....	....	....	....	....
Marshall Islands	92	311	10	15	306	31	2	6	...	....	....	....
Mexico	351	680	5,991	9,610	30,299	2,973	1,277	5,719	106	1,796	17	105
Marquesas	11	61	6	27	....	....	2	3	1	8	....	....
New York	42,045	188,634	....	....	191,275	24,803	....	....	....	....	78	1508
Padang	283	1,055	....	....	....	....	....	....	....	....	....	....
Pekalogan	56	155	....	..	....	....	....	....	....	....	....	....

New Zealand	3,449	13,640	100	199	29,934	2,393	589	5,283	2	31	....	....
Penang	584	2,408	....	....	....	....	...	....	....	....	....	....
Peru	...	....	....	....	....	....	5	180	....	....	....	....
Rarantonga (Harvey Islands)	3	4	....	....	50	7	1	26	....	....	....	....
Rotterdam	220	775	....	....	....	....	...	....	....	....	....	....
Scotland	2,290	9,816	....	....	....	....	....	....	....	....	....	....
Surabaya	1,046	4,113	....	....	....	....	....	....	....	....	....	....
Tahiti	78	274	78	188	449	128	....	....	....	....	....	....
Tonga Islands	25	100	....	....	....	....	...	....	....	....	....	....
U. S. of Columbia	20	82	37	178	....	....	29	146	....	....	....	....
Tasmania	...	....	....	....	....	....	45	91	....	....	....	....
Vernan	6	24	....	....	....	....	....	....	....	....	....	....
	253,725	1,099,122	30,123	48 649	747,914	73,961	7,544	34,955	1,045	9,052	512	3.901

Summary in Pounds.

Pounds	15,223,440	2,417,840	747,914	603,520	94,500	12,088
Total Pounds	19,099,302	....	....	....	......	......
Total in Carloads	954	....	......	....	......	......
Total Value	$1,269,640	....	....	....	......	......

3

3d ANNUAL REPORT

TO THE

CALIFORNIA STATE BOARD OF TRADE,

SHOWING

Shipments of Fruits, Wine and Brandy for 1892,

BY

GEN. N. P. CHIPMAN,

CHAIRMAN COMMITTEE ON INDUSTRIAL RESOURCES OF THE STATE.

E. W. MASLIN,
Secretary and Gen'l Manager.

EUGENE J. GREGORY,
President.

EXHIBIT ROOMS
602 MARKET ST., CROCKER BUILDING,
San Francisco.

PACIFIC RURAL PRESS PRINT.

Red Bluff, Calif., March 14, 1893.

Hon. Eugene J. Gregory,
President California State Board of Trade,
San Francisco.

Dear Sir:—

I submit herewith the Annual Report of Shipments of Fruit, Wine and Brandy from California for the year 1892.

I have been unable to obtain the official data until quite recently, and hence the delay. There is this to be said of our Annual Reports of Fruit Shipments: They are the most nearly accurate compilations that are given to the public in compact and available form for the entire State. They rest upon facts furnished by those who are in a position to know, and who have no motive to misstate them. A study of these Reports will always be a safe guide to those most interested

FRUIT SHIPMENTS EAST BY SOUTHERN PACIFIC SYSTEM—1892.

Data furnished by Mr. Richard Gray, General Traffic Manager.

PLACE.	Deciduous Green Fruits, Lbs	Citrus. Lbs.	Dried Fruit, Lbs.	Raisins, Lbs.	Nuts, Lbs.	Canned Fruit, Lbs.
San Francisco	332,000	222,000	7,394,000	894,000	364,000	30,108,000
Oakland	3,034,000	....	226,000	....	120,000	4,028,000
San Jose	14,084,000	....	18,948,000	60,000	20,000	16,030,000
Stockton	12,106,000	....	9,888,000	39,366,000	34,000	2,662,000
Sacramento	62,142,000	2,000	7,890,000	1,500,000	482,000	14,572,000
Marysville	3,962,000	....	3,340,000	328,000	122,000	3 408,000
Total north of Tehachapi	95,660,000	224,000	47,686,000	42 148,000	1,142,000	70,808,000
Los Angeles	800,000	17,852,000	5,484,000	1,692,000	1,170,000	3 108,000
Total by S. P. Co	96,460,000	18,076,000	53,170,000	43,840,000	2,312,000	73,916,000

FRUIT SHIPMENTS EAST BY SOUTHERN CALIFORNIA RAILWAY CO.—1892.

Data furnished by Mr. H. C. Whitehead, Auditor (Santa Fe System).

COUNTY AND PLACE OF SHIPMENT.	Deciduous Green Fruits, Lbs	Citrus Fruits, Lbs	Dried Fruits, Lbs	Raisins, Lbs.	Nuts, Lbs.	Canned Fruits, Lbs
Los Angeles	7,328,940	10,311,000	2,299,060	393,320	1,412,940	3,170,600
Orange	733,090	5,103,000	730,910	240,000	209,720	25,520
San Bernardino	6,221,540	35,322,000	2,202,460	5,016,000	58,780	439,720
San Diego	945,120	903,000	333,550	3,624,000	23,800	3,980
Total South of Tehachapi	15,228,690	51,639,000	5,565,980	9,273,320	1,705,240	3,639,820

SHIPMENTS BY SEA FROM SAN FRANCISCO.

Compiled from the *Commercial Herald and Market Review Annual* for 1892.

	Pounds.
Canned Fruits	32,991,600
Dried Fruits	696,681
Green Fruits	1,060,510
Nuts	108 785
Raisins	233,640
Total Pounds of All Kinds	35,091,216
Total in Carloads	1,754.

SUMMARY OF FRUIT SHIPMENTS BY RAIL —1892.

Excluding Wine and Brandy.

Kinds.	S. P. Co.	Santa Fe System.	Total, Lbs.	Total, Cars.
Green Fruits, Deciduous	96,460,000	15,228,690	111,688,690	5,584.43
Citrus Fruits	18,076,000	51,639,000	69,715,000	3,485.75
Dried Fruits	53,170,000	5,565,980	58,735,980	2,936.79
Raisins	43,840,000	9,273 320	53,113,320	2,655.66
Nuts (Almonds and Walnuts)	2,312,000	1,705,240	4,017,240	200.76
Canned Fruits	73,916,000	3,639,820	77,555,820	3,877.79
	287,774,000	87,052,050	374,826,050	....
Cars	14,388.7	4,352.6	18.741.3	18,741.18

Total pounds by sea	35,091,216
Total pounds by sea and by rail	409,917,266
Total cars by sea and by rail	20,495

WINE AND BRANDY SHIPMENTS BY SEA AND BY RAIL.

Data furnished by Mr. Clarence J. Wetmore, Sec'y Board of Viticultural Commissioners.

Kinds.	1891. Gallons.	1892. Gallons.
Wine by Rail	5,621,179	6,330,624
Wine by Sea	5,492,850	4,843,128
Brandy by Rail	305,886	366,763
Brandy by Sea	493,726	540,957
Total Gallons	11,913,641	12,081,472
Total Expressed in Carloads	4,765.4	4 832.5

COMPARATIVE TABLE OF FRUIT SHIPMENTS BY RAIL—1890, 1891, 1892.

Kinds.	1890.	1891.	1892.
Green Deciduous	68,084,124	98,689,100	111,688,640
Citrus	68,419,370	93,862,800	69,715,000
Dried Fruits	64,595,181	65,090,220	58,735,980
Raisins	41,120,330	44,954,850	53,113,320
Nuts	1,574,230	2,623,560	4,015,240
Canned Fruits	80,121,950	49,566,680	77,555,820
Total pounds	323,915,185	354,778,210	374,324,000
Carloads	16 195.7	17,738.9	18,741.2
Add total in carloads by sea	....	954	1,754.5
Total carloads fruit	....	18 692.9	20,495.7

COMPARATIVE SHIPMENTS OF FRUIT BY RAIL FROM NORTH AND SOUTH CALIFORNIA—1892.

Kinds.	From North Lbs.	From South Lbs.
Green Deciduous	95,660,000	16,028,690
Citrus	224,000	69,491,000
Dried Fruit	47 686,000	11,049,980
Raisins	42,148,000	10,965,320
Nuts	1,142,000	2,865,240
Canned	70,808,000	6 757,820
Total by rail	257,668,000	117,158,050
Total Canned Fruit by sea from San Francisco	32,991,600	....
Other fruits from San Francisco by sea	2,100,616	....
Total by sea and rail	292,760,216	117,158,050
Carloads	14,638	5,857.9

GENERAL SUMMARY OF SHIPMENTS OF FRUIT AND PRODUCTS OF FRUIT BY SEA AND BY RAIL, 1892, EXPRESSED IN CARLOADS.

Fruits of all kinds by rail	18,741
Fruits of all kinds by sea	1,754
Total fruits	20 495
Wine and brandy by rail	2,678
Wine and brandy by sea	2,153
Total carloads	25 326

The tables show a steady increase in fruit shipments, although not so rapid as has been predicted. The severe weather in the south greatly reduced the orange crop. There was a falling off in shipments as compared with 1891, of 1208 carloads.

There was by no means a full crop of deciduous fruit in 1892, but the increase over 1891 shipped by rail, excluding canned fruit, reached 809 carloads. The gain in shipments of canned fruit by rail was 1399 carloads, which, added to the 809 carloads of other deciduous fruits, makes a gain of shipments by rail of 2208 carloads.

To show the entire gain of shipments from the State, there must be added the gain in shipments of fruits by sea, which was 800 carloads gain, making in all a gain for 1892 over 1891 of 3008 carloads. The shipments by sea, mainly canned fruit, were nearly double those of 1891.

Some notable differences not mentioned are to be observed.

Our shipments by rail of green deciduous fruits in 1892 exceeded those for 1891 by 600 carloads, and exceeded shipments of same in 1890 by 2135 carloads.

The citrus fruits shipped in 1892 exceeded same for 1890 only 80 carloads.

The dried fruit shipments by rail for 1892 were less than in 1890 or 1891.

The raisins shipped by rail in 1892 exceeded those shipped in 1890 by 600 cars; and exceeded shipments in 1891 only 40 carloads.

In canned goods the gain for 1892 was quite large. This was due partly to stock of 1891 held over into the new year, and partly by reason of a smaller pack for 1891 than usual.

The railroads shipped 1399 carloads more in 1892 than in 1891, and there went out o the State by sea 938 carloads more than in1891, making a total gain in canned goods of 2337 carloads.

Considering the distribution of the fruit crop of the State, the same facts are noticeable as in former reports. Southern California continues to produce practically all our citrus fruits, while Northern California produces the bulk of the deciduous fruits.

Southern California shipped in 1892 by rail of deciduous fruits in all forms 2383 carloads, while Northern California shipped by rail 12 867 carloads, and by sea from San Francisco 1754 carloads—the product of Northern California orchards. There were doubtless some shipments by sea from ports in the south, but I have not been able to obtain any account of them.

In the shipments by sea the notable increase is in canned fruits.

There was but little difference in the shipments of other fruits.

In 1891 our exports of canned fruit by sea amounted to 76[illegible] carloads. In 1892 we exported the equivalent of 175[illegible] carloads.

England took 172,073 cases in 1891 and 191 997 cases in 1892. Australia more than [illegible]ed her purchases, taking 41,272 cases in 1892. Germany took 8 cases in 1891 and 2002 cases in 1892.

Large shipments were made by sea to Eastern cities. More shipments were made to the city of New York alone than the entire amount shipped by sea in 1891, and withal the railroads carried 1400 carloads more than in 1891.

I am informed by the railroad companies that some part of the canned goods are vegetables, but that the proportion is quite small.

From an intelligent view of the fruit industry it will be found to be in an exceedingly prosperous condition and growing rapidly throughout the State.

Respectfully Submitted,

N. P. CHIPMAN,

Chairman of Committee of Industrial Resources of the State.

4th ANNUAL REPORT

TO THE

CALIFORNIA STATE BOARD OF TRADE,

UPON

The Industrial Resources of the State of California, for 1893,

BY

GEN. N. P. CHIPMAN,

CHAIRMAN, COMMITTEE ON INDUSTRIAL RESOURCES OF THE STATE,

FEBRUARY 13TH, 1894.

> "Fruit growing is destined to be the ultimate glory of California."
> *Horace Greeley, 1859.*

EXHIBIT ROOMS,
602 MARKET STREET, CROCKER BUILDING,
SAN FRANCISCO.

ANNUAL REPORT.

San Francisco, Cal., Feb. 13, 1894.

Hon. Eugene J. Gregory, President California State Board of Trade:

In presenting my Fourth Annual Statement of the Fruit Shipments from California, the occasion invites something more than statistical recapitulation. There are thousands of intelligent people now here as visitors at the Midwinter Fair, many of whom entertain the hope of remaining, or again coming to remain. As one of the recognized instrumentalities of the State, whose voluntary services have been devoted to a better and more widely extended knowledge of our resources and industries, this State Board of Trade would seem to be called upon to invite attention specially to Fruit Growing in California.

It is not our purpose to discourage any of the remarkably diversified industries of the State, a catalogue of which it would be difficult to parallel anywhere on the globe. It may serve a useful purpose, to present a table of some of the more prominent of these sources of wealth to our people, although this report will not attempt to speak of them in detail.

SOME GENERAL FACTS ABOUT CALIFORNIA.

(Compiled from Midwinter Fair Edition Daily Chronicle.)

Second to the largest State in the Union; area, 157,801 square miles.

First State in value of gold product.

Value of gold produced in 1893	$ 13,000,000
Value of gold produced since 1849	1,246,404,000
Total yield of mines in 1893	20,000,000
Petroleum and bitumen products in 1893	1,000,000
Quicksilver (flasks) produced in 1893	29,300

Borax product, 1893 (pounds)	1,000,000
Wheat crop (bushels) 1893	36,158,000
Barley “ “ “	14,500,000
Beans “ (pounds) “	79,247,000
Beet sugar, campaign 1893–4 (estimated) lbs.	42,000,000
Wool product (pounds) 1893	30,500,000
*Hop product (bales)	48,000
Average annual product of fisheries	4,572,300
Whaling catch San Francisco fleet, 1893	1,000,000
Lumber received at Port of San Francisco (feet)	388,906,554
Lumber exported from San Francisco in 1893 “	21,300,000

San Francisco third commercial city in the United States.

†San Francisco manufactures, value, 1893	$ 86,400,000
Deposits in Saving Banks in State, 1893	138,019,874
Increase over 1892	17,237,231

Our mines, our forests, our broad acres of general agriculture, our stock farms and ranges, our natural resources of petroleum and gas, our irrigated and our non-irrigated areas with their endless variety of products, our quarries, our fisheries, our factories need never be less in importance than they are today, and may be greatly enlarged, and yet admit of an almost unlimited expansion of our orchards.

The great charm of California lies in the fact that all these varied occupations may be pursued under climatic conditions contributing to the highest degree of physical comfort and pleasure. We do not encounter extremes of cold at all, except in the very high altitudes of our mountains, and extremes of heat are never insufferable or specially irksome: along the coast they are unknown, and in the interior valleys the great aridity of the atmosphere makes the heat quite endurable for the short period of its duration.

California may be said to be a sanitarium wherever one may go, and at the same time it is a theater for great possible commercial, agricultural, mining and manufacturing activities. Unlike Florida or the humid semi-tropical regions, the mind

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*The COMMERCIAL HERALD reports 9,618 bales hops received at San Francisco. I think the CHRONICLE figures must be too large. The Pacific Coast crop of 1893 is estimated at 120,000 to 125,000 bales.

†The COMMERCIAL HERALD puts the figure at $99,000,000.

and body know no enforced lassitude and indifference to labor—indeed, the climate is peculiarly invigorating and stimulating in all parts of the State. Physical inertia does not exist in California by reason of climatic influences. The great objection to most countries having a favorable climate is, that the occupations of man are greatly curtailed; he must give up his mental and physical activities and abilities in order to enjoy the desired climate. Then, too, this favorable climate, when found, has its seasons of great discomfort and often unhealthfulness. This is not true in California, and herein is its strongest plea to the home-seeker. He can hardly fail to be pleased wherever he may go, and nowhere along the coast or in any of our interior valley regions will he fail to find a verification of all that has been claimed for our climate, and almost everywhere he has the choice of pursuits before him that he has found congenial where he has hitherto lived.

Thus much this Board desires to say generally of the state, and its advantages and industries.

In this connection may be mentioned the fact that we are large importers of products of the farm, which we ought to produce at home, and could with great profit. This fact was very strongly presented by Governor Markham in his last Annual Message. I quote:

AGRICULTURAL PRODUCTS IMPORTED.

"I have endeavored to obtain the amount of the annual imports into the state of this class of products. The appended list is by no means complete, nor the amounts of the items nearly as great as they probably should be, but it is sufficiently accurate for the purpose of illustration:

Live stock	about	40,000	tons.
Wool	"	1,500	"
Hides	"	600	"
Meats and packing-house products	"	20,000	"
Poultry	"	1,000	"
Butter	"	2,000	"
Cheese	"	1,800	"
Eggs	"	3,500	"

Hay	about	15,000	tons.
*Potatoes	"	3,000	"
Broomcorn	"	800	"
Flour	"	2,500	"
Other mill products	"	2,500	"
Starch	"	1,600	"
Olive oil	"	150	"
*Honey	"	50	"
Canned Goods	"	6,000	"

If these figures be correct—and as they have been obtained from reliable sources I have no doubt they are—it will be seen that we are importing over 40,000,000 eggs annually, probably three-quarters of a million of poultry annually, and potatoes, butter, pork, beef, flour, etc., in very large quantities,—every pound of which could be produced in this state."

This subject should challenge attention, and should add to the many inducements to come to California.

FRUIT GROWING THE CHIEF INDUSTRY.

While all this is true, it is the opinion of this Board that Fruit Growing in all its varied forms has become, and will ever continue to be, the commanding industry of the state relating to the soil.

The commercial importance of Fruit Growing in California has attracted wide attention, not only among the most intelligent agronomists in this country, but in all Europe. The excellence of our wines and our fruits, and the favorable conditions surrounding their production, have turned the minds of all lovers of what may be justly termed the esthetics of agriculture to this very large and inviting field. The ideal life to most people unquestionably is one where the employment is both congenial and profitable, and where there is least of drudgery and unrequited toil, and the most of physical comfort in the natural surroundings. This ideal condition is more nearly found in California than elsewhere in America. This

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*The tables herewith submitted show that we exported in 1893 over 1668 car loads of potatoes. We rarely import vegetables of any kind.

We also exported 95 car loads of honey. I can hardly think we import much.

is now a recognized truth, and may be set down as no longer exaggeration. It is climate that makes this true, because it is the climate that makes the great range of our fruits possible, and gives an immunity from extremes of heat and cold. Climate is the basic factor, and out of this everything else is resolved.

We grow oranges, lemons, figs, olives, prunes, and every known variety of grapes, pears, peaches, almonds, cherries, apples, nectarines, apricots, walnuts, filberts, small fruits of all kinds, vegetables and vines of all descriptions, on the same soil, in the same orchard, and under the same conditions. We assert that there is no other one place in all Europe or America where this is possible.

FRUIT GROWING LOCALITIES.

It has come to be generally known that California is largely engaged in fruit growing, but there is little accurate knowledge as to the distribution of our fruits, or of the localities where grown.

The descriptive literature of the magazines and most of the readable books concerning the state have served to create a vague impression as to the merits of the northern portion of the state, but have given a very vivid conception of its southern portion.

It was unfortunate that a sectional designation of the two regions should have become necessary. We ought to have been content to invite people to California, and not to any one portion of it. But the people of the South were first to attract the attention of the East by their wonderful enterprise and highly commendable local effort, as well as by the intrinsic merit of the region, and naturally they wished to reap the reward. Having spread the feast, they directed the guests where to find it, and Southern California became necessary as a description. All the finger boards nailed up at the eastern cross-roads were inscribed, "To Southern California."

Necessarily and inevitably, all the rest of the State became Northern California. Much as this nomenclature may be deplored, it is now fixed upon and inseparable from the respective regions. And with a correct knowledge of the climate and productions of the two portions of the state, it is a matter of indifference what they are called.

The counties that constituted themselves Southern California were Los Angeles, San Diego, San Bernardino, Santa Barbara and Ventura. Two counties have since been carved out of these—Orange and Riverside—but the general territory continues the same. The remaining forty-nine counties constitute Northern California.

In point of area these southern counties contain twenty-nine per cent of the area of the state; in population, sixteen and two-thirds per cent. (Census, 1890.)

As to the products of the soil it is unnecessary to pursue the comparison except as to the products of the orchard, more especially the subject of this Report; and as to these the accompanying tables clearly show the relative importance of the two divisions. It will be there seen that as early as 1890 the value of the shipments out of the state from Northern California was double that from the South. A study of these tables will show a clear and accurate idea of the fruit products of the two regions.

NUMBER OF ACRES OF TREES PLANTED.

To the intending settler, who desires to engage in fruit planting, a definite idea of the adaptability of the various counties of the state to growing specific varieties of fruit may be obtained from the actual tree planting. The State Board of Horticulture in 1892 gathered this information as the plantings then showed. This table gives the facts in a way to enable the reader to locate the counties, and kinds and quantities of trees planted in each, and it may be taken as substantially correct.

The plantings of wine grapes are not shown, of which there were then about 150,000 acres in the state, mostly in Northern California.

In connection with the tables of fruit shipments, which give general points of shipment from regions round about them, this information will enable the intending settlers to go at once to a fruit-growing county without any further guide.

TABLES GIVING NAMES OF COUNTIES, ACRES AND KINDS OF FRUIT TREES, BEARING AND NON-BEARING, 1892.

COUNTIES.	Apples.	Cherries.	Nectarines.	Peaches.	Plums.	Pears.	Quinces.	Small Fruits.	Table Grapes.	Total
Alameda	505	2171	407	1375	1885	1701	4	1343		
Alpine	15½	1		1	1	2½		2½	1	
Amador	127	18	26	343	33	71		20	5	
Butte	307	165		3286	221	913		18	293	
Calaveras	190	19		340	50	110	1	64	154	
Colusa	9	19		229		279			160	
Contra Costa	114	206		427		599	78	68	425	
Del Norte	125			7	8	7				
El Dorado	255	39		1338	41	196			190	
Fresno	185	7	149	2058	25	634				
Glenn	109	23		386	10	123			50	
Humboldt	749	22	1	15	9	8	1	94	3	
Inyo	147	14		110		38			20	
Kern	338	25		1079		315			210	
Lake	228	44		210		153			450	
Lassen	337			25	21	68		74		
Los Angeles	1511	18	36	4059	307	1661	16	321	1182	
Marin	486	15		90		60				
Mariposa	165	15	4	20	2	28		2	120	
Mendocino	596	17	40	97		110		13	14	
Merced	34	4		423		87			465	
Modoc	210	3		14	10	25	2			
Mono	11									
Monterey	350	28		176	30	101				
Napa	261	260		845		286		12	6	
Nevada	360	26		326	9	659		4	105	
Orange	128		30	1203	5	803			130	
Placer	332	272	13	3621	376	1069		28	1174	
Plumas	60	2			4	16				
Sacramento	39	160		2870	687	2592		870	2550	
San Benito	110	40		207	16	162		20	12	
San Bernardino	222			2090		402		89	274	
San Diego	750	16	11	793	214	591	6		510	
San Joaquin	75	111		830		380		520	1043	
San Luis Obispo	370	112		509		355		25	925	
San Mateo	149	5	1	12		26			100	
Santa Barbara	417	200	32	661		308	20		573	
Santa Clara	750	1250		5570	900	900	40	360	1200	
Santa Cruz	1619	340		772		333		260	1253	
Shasta	97	26	10	826	5	83	1			
Sierra	68	4		5	2	4		5		
Siskiyou	1212	22	8	113	3	13	9	25	10	
Solano	53	436	160	4915		3050			382	
Sonoma	4121	317		2507		1407		200	427	
Stanislaus	182	32	7	340		178				
Sutter	76	41		981		392			34	
Tehama	86	59		3182		517	12	40	310	
Trinity	42	2		35	3	50		30	60	
Tulare	147	6	128	3800	89	642				
Tuolumne	268	28	1	97	5	68	2	22	25	
Ventura	302	25	16	218		217			69	
Yolo	25	25		1040	15	621			1500	
Yuba	103	39		351	28	329		10	38	
Total	19,527½	6729	1080	54.827	5.014	23.742½	192	4.539½	16.452	

TABLES GIVING NAMES OF COUNTIES, ACRES AND KINDS OF FRUIT TREES, BEARING AND NON-BEARING, 1892.

COUNTIES.	Apricots.	Figs.	Olives.	Prunes.	Oranges.	Lemons.	Almonds.	Raisins.	Eng. Walnuts.	Total.
Alameda	3310	24	37	2351	12	1	1037		36	
Alpine	½			3½						
Amador	115	34	8	214	2		44	3	9	
Butte	540	259	755	1031	2664	20	1588	394	12	
Calaveras	53	26	120	69	15		89	23	23	
Colusa	280	26	10	804	9	1½	46	216	60	
Contra Costa	387	39	160	654	7	3	477	216	50	
Del Norte	1			2						
El Dorado	29	24	16	279	6	4	21	79	8	
Fresno	560	451	120	1578	133	3	26	43,900	70	
Glenn	227	29	9	250	23		188	900	80	
Humboldt	5	2	9	451					3	
Inyo	24			72			2	60	4	
Kern	300	81	31	946	26	3	167	5600	71	
Lake	22	25	54	438	1		25	4	75	
Lassen	53			2			1		2	
Los Angeles	2899	973	788	3425	12,297	1773	107	671	1789	
Marin	71	3	1	46	2		2		1	
Mariposa	18	19	30	25	28	10	22	40	12	
Mendocino	3	1	2	568	1		5	7		
Merced	35	169	300	148	52	5	65	1160	14	
Modoc	6			10						
Mono										
Monterey	583	17	52	1086			20		23	
Napa	198	23	105	1127	16	4	77		40	
Nevada	41	14	13	65	2		27	14	19	
Orange	1492	82	70	1788	5412	481	2	422	2592	
Placer	280	92	419	229	273	5	69	128	22	
Plumas			*3							
Sacramento	535	134	117	1083	195	11	258	400	44	
San Benito	228	37	38	702	*3	1	76	17	44	
San Bernardino	1554	362	312	1463	36,237	1003	57	4970	201	
San Diego	961	291	1063	676	1030	4775	74	3454	567	
San Joaquin	693	155	84	511	38	1	852	618	69	
San Luis Obispo	366	34	128	1144	20	140	39		479	
Santa Barbara	921	740	871	827	340	1276	340		1903	
San Mateo	45	1	28	48			5	10		
Santa Clara	4350	20	135	8000	40	5	200	200	17	
Santa Cruz	680		124	1982					13	
Shasta	281	8	37	680	26		81			
Sierra	2						1		2	
Siskiyou	120			30			5		2	
Solano	3733	251	104	2870	70	8	1470	1328	70	
Sonoma	229	51	607	2599		2	70		80	
Stanislaus	199	143	22	48	112	4	36		3	
Sutter	227	84	17	227	27	2	304	418	15	
Tehama	574	125	107	1328	15	2	366	607	30	
Trinity	2						1		20	
Tulare	724	182	320	5121	104	63	7	10,264	12	
Tuolumne	27	18	2	4	5	2	8	50	13	
Ventura	1057	62	613	843	548	443	150	287	6305	
Yolo	824	68	33	1522	5		499	5500		
Yuba	161	42	133	257	211	11	22	262	8	
Total	30,025½	5231	7997	49,626½	60,007	10,062½	9228	82,222	14,912	

Total bearing..282,496½ acres.
" non-bearing..118,918½ "

" bearing and non-bearing..401,415 "

* This must be error. The olive, I think, cannot grow in Plumas County, no part of which is exempt from zero weather.

TREE PLANTING AN INDEX OF CLIMATE.

As an index of climate, it will be observed that in Shasta County, nearly 500 miles north of San Diego, there were 26 acres of orange trees growing; in Tehama County, next south, were 15 acres, and in Butte County, the next south, 2664 acres; in Placer, Yuba, Sutter, Colusa and Glenn, the next group, and about same latitude, there were 532 acres; in Sacramento County, 195 acres. Following south through the valley region, oranges are found growing in every county in acre plantations. It will surprise many people to know that there were more orange trees growing (1892) in Butte County, 450 miles north of San Diego, than in the three southern counties of San Diego, Santa Barbara and Ventura combined. This ought to set at rest all previous controversies about the climate of the two regions.

There are other of the fruit tree plantings given in the tables that also show the parallel lines of equal temperature: for example, the raisin, almond, prune, olive and fig.

Of the 82,222 acres of raisins in the state, 9,382 acres are in Southern California. Tulare County has more acres, and Fresno County nearly five times as many, as in all of Southern California.

Of the 9,228 acres of almonds, 728 acres are in the South.

Of the 49,626 acres of prunes, 6,234 acres are in the South. Santa Clara County has more acres than all Southern California.

More than half of the olives planted in the state (7,997 acres) are in Northern California; in the county of Butte there are 755 acres, nearly the acreage of Santa Barbara County, where Mr. Elwood Cooper has made the state famous by his olive oil.

Of the 5,231 acres of figs, more than half are in Northern California.

The rapid development of this industry, from 546 car loads shipped out of the state in 1880, to 27,329 shipped out in 1893, has attracted attention throughout the United States and in many foreign countries. Our products have visibly affected the commerce of Spain, Italy, France, Germany, Turkey and

Greece, not to mention the Islands of the South Seas and Mexico. We have nearly driven the foreign raisins from the American market; we have reduced the imports of prunes more than one-half; we have largely displaced foreign wines; we shall in time supply the almonds, walnuts, figs, olives and olive oil, and with Florida, the oranges and lemons, to be consumed in this country.

And what is more important than all else, we shall give, as we are now giving, to the consumers, fruits at lower prices than they have ever been in former years.

DANGER OF ALLEGED OVER-PRODUCTION CONSIDERED.

But this rapid growth has brought with it the question of possible over-production, and also the resulting question, Will the business continue to be profitable?

These may be answered together, for if we cannot over-produce there will be a market, and that secures the profit.

Let me briefly summarize the arguments against these fears of over-production and consequent unprofitableness.

First. Our population is increasing at the rate of one million or more per annum, and at an increasing ratio. By the time the orchard plantings of 1894 all come into full bearing, we shall have already 100,000,000 mouths to supply.

Second. Enlarged and new markets not now exploited will be reached from year to year. Mr. Wm. H. Mills has shown, by a study of the points of consignment of our fruit, that we have so far reached only about 5,000,000 of the present population.

This same gentleman has compiled an interesting and instructive table, showing consignments of fresh deciduous fruits to certain cities, from which it appears that a very large number of cities having over 25,000 population each have received no direct consignments, and many no fruit at all.

A committee, consisting of Messrs. Alfred Holman, B. N. Rowley and John Isaac, appointed by the State Board of Horticulture, have reported "that the districts in which our fruits are offered to consumers are almost insignificant, when compared with the wider districts where fruit is wanted, but to which it never goes." They give a list of 29 cities of over 50,000 population each, to which no California fresh fruit is shipped direct.

So it would seem that at least double our present output could find a market with our present population, if we will only get the fruit to them.

As illustrating the rapid development of table uses of fruit, I refer to Census Bulletin No. 38, for 1890. The first table grapes grown in this country and shipped to New York City were 50 pounds, in 1845. They went from the Lake Keuka District by the New York and Erie Canal. The grower was encouraged to send 200 pounds the next year, but broke the market. It was estimated that in 1890 there went from the same district to the leading cities of the East 20,000 tons for the table. The Hudson River District was estimated to have sent 15,000 tons; the Chatauqua District 15,000 tons; making 50,000 tons, or 5000 carloads of table grapes.

Third. The factor of transportation lies at the root of success. Gradually rates have been reduced from $1200 a car in 1876, to $360 a car of 12 tons for green, and $288 a car of 12 tons for dried fruits in 1893 to New York, and less to Chicago. Refrigeration has been introduced for green fruits, but this adds to the expense and is a burden which other devices must soon displace. The rates from main line shipping points in California in carload lots, are as follows:

In ventilated cars to Chicago, freight train service, $250; to New York, $300. Approximate passenger train service to Chicago, $450; to New York $500.

In refrigerator cars, freight train service to Chicago, $300; to New York, $600. Minimum weight on shipments in ventilated cars, ten tons; in refrigerator cars, twelve tons.

The rates are no longer a stumbling block. The time of transit is the chief source of complaint as to green fruits, and also the cost of refrigeration: quicker time, however, would do away with much of this cost. We must rely upon the railroad companies to find a way to carry four to six pounds of freight at the same rate per car in the green form, rather than take it in the dried form, which would give them only one-fourth or one-sixth as much business. Besides, these carriers know that the sale of green fruit prevents over-production of the dried, and promotes their business as well as ours. We are now reaching eastern markets with our oranges at about as low a rate per box as the Florida orange growers, distance and different conditions considered.

What we want and will surely have is an expedited service of not less than five days to Chicago and seven days to New York on green fruits; and with that all fears of over-production will vanish.

Fourth. The Nicaragua Canal will be built before all the orchards planted in 1894 are in full bearing, and that will give us the world's markets for dried fruits.

Fifth. The precocity, constancy and certainty of our trees in bearing, and the prolificness and superior quality of our fruits, give our growers a great advantage, and enable them to produce fruits at a profit that can be sold within the means of the mass of fruit-eaters in the East. An apple orchard in Kansas that gives a good crop once in three years is worth more than any other land. A peach orchard in Michigan or New Jersey that gives a crop once in two years is valuable property. Why, then, may not California orchards that produce every year be profitable?

Sixth. The wonderful range of varieties that may be grown here gives a diversity of products in the same orchard not elsewhere to be found. This range includes many valuable and delightful fruits not elsewhere produced in the United States. We have no competitors on this continent for our olives, figs, raisins, foreign table and wine grapes, almonds, English walnuts, apricots, and only Florida for our oranges and lemons, and only Oregon—and not seriously there—for our prunes. Indeed, upon the question of competition this general truth may be stated: that we have no competition in any of our fruits from regions where there is great uncertainty in tree-bearing. The orchards of the hardier deciduous fruits of the region east of the Rocky Mountains are too capricious to enter the field of competition against a country whose orchards are prolific and constant bearers. And it must follow that with quick transit and reasonable charges we shall ultimately force many eastern orchardists to seek more profitable uses for their lands. This is the logical sequence of the unerring law which at present fills California with manufactured articles that can be produced more cheaply in the East than here; and it is the law that will give us the markets of America for all our fruits.

Seventh. The ultimate just regulation of the profits to middle-men will give low prices to the consumer and yet profitable prices to the producer. At present when prices are low to the producer the consumer pays fully 100 per cent more than the producer receives. This is not true of any other agricultural product and must not be allowed to be true of fruit. There is no reason for prunes costing 5 cents per pound in California selling in Nebraska or Illinois or New York for 15 cents per pound. Recent investigation has shown that the consumer pays altogether too much for our fruit. We can grow fruits at a profit so that they will become articles of food necessity and not remain articles of luxury, as they now are. This we are seeking to do and shall do. We concede a necessity for middle-men, but we deny any necessity to pay them for selling our fruit more than the producer receives, or in fact any more than a reasonable compensation for the service.

Eighth. The readiness with which any intelligent person may acquire a practical knowledge of the art of fruit growing, and the inherent delight which accompanies the occupation in this state, must prove a most attractive feature of the business. The possibility of utilizing profitably every day of the year, and not a day of actual physical discomfort encountered, will heighten the interest of the horticulturist, and lead him to exalt his occupation.

WHERE TO LOCATE.

And this leads us to the inquiry of vital significance:

Where shall the intending fruit grower settle down?

It is not the purpose of this report to point out or recommend localities. This is a State Board, and knows no north or south, no coast, valley, or mountain; it seeks only to place reliable facts before home-seekers, and leave them to choose localities.

The chief embarrassment the immigrant will find is to select a home in all this vast region of desirable country. The merit of Southern California is attested in the fact that people once attracted there seldom go elsewhere, but are content to live in that charming country. It is also true that people coming into the north, and into what may more properly be termed the central portion of the state, pitch their tents there, and are content and happy. The practical results of fruit growing in the state show that the advantages and disadvantages are about equalized throughout all the fruit regions. There are compensations here for the advantages there, and the matter of choice must be determined largely by considerations entirely apart from financial results, for the business intelligently pursued will bring substantially the same results in all parts alike. The first cost of land, the kind and character of people in the neighborhood, the school and church privileges, the general air of thrift noticable, the greater or less advancement of horticulture, the nearness of lines of transportation, the condition of the roads and highways, the intellectual advancement of the neighborhood,—all these and a hundred little things will more or less determine the choice. But once made, there is no reason why the fruit grower who has selected that as an occupation should not be content and happy and prosperous anywhere in California, from Shasta County in the extreme north, to San Diego County in the extreme south.

MOVEMENTS OF FRUIT.

The tables of monthly shipments submitted with this Report were furnished by the Southern Pacific Company only, and hence I am unable to show the entire shipments as they occurred monthly. These tables, however, present some instructive and new facts from which important deductions are to be drawn. They show when our fruits and garden products are forwarded, and how they are distributed throughout the year. We commence moving green deciduous fruits in May, and continue without cessation until and including December—being eight consecutive months. Now that our apples have found an eastern market, we shall hereafter ship fresh deciduous fruits ten months in the year.

We ship citrus fruits every month in the year.

We ship fresh vegetables and potatoes every month in the year. No higher attestation of the possibilities of climate could be given than these tables show.

We ship dried fruits, raisins, honey, canned fruit and beans every month in the year, and nuts nearly every month.

Shipments of green deciduous fruits begin in May from Sacramento and Marysville, and in June from Los Angeles, as shown by the monthly shipments. The bulk of this fruit is sold in July, August, September and October, the greatest monthly shipment being in August. Over 2000 carloads were shipped from the northern part of the State in that month, in 1893.

These tables demonstrate the truth of our claim, that the orchard and the garden may be made the source of an uninterrupted flow of money to the producer throughout the entire year. This is a factor in farm life of great economic value.

The tables show that the bulk of our dried fruit follows on the heels of the bulk of green fruit, and is sent out in September, October and November.

The canned goods move with the dried fruit.

The table of monthly shipments of fresh vegetables from the North will be a revelation to many. There were 2090 carloads shipped in the months of November, December, January, February and March. A large quantity went from Southern California, which cannot be shown by months. And yet gardening in California for the eastern markets is confined to comparatively narrow limits, because the agriculturist is slow to seize the advantages offered.

Doubtless the risks are greater than in fruit growing, and greater care will be required in avoiding too rapid development of the industry ; but, intelligently managed, gardening in California offers a very promising field.

A PROPHECY.

It may lend some interest to this report to recall the prophecy of Horace Greeley. I quote from his book published in 1859, entitled "Overland Journey from New York to San Francisco." August 27th, 1859, he wrote from San Jose as follows :

"Fruit, however, is destined to be the ultimate glory of California. Nowhere on the earth is it produced so readily or so bountifully. Such pears, peaches, apricots, nectarines, etc., as load the trees of this valley, and of nearly every valley in the state which has had any chance to produce them, would stagger the faith of nine-tenths of my readers. Peach trees only six years set, which have borne four large burdens of fruit while growing luxuriantly each year, are quite common. Apple trees, but three years set, yet showing at least a bushel of large, fair fruit, are abundant. I have seen peach trees four or five years from the states, which have all the fruit they can stagger under, yet have grown three feet of new wood over the load during the current season. Dwarf pears, just stuck into the black loam, and nowise fertilized or cultivated, but covered with fruit the year after they were set, and thenceforward bearing larger yields each succeeding summer, are seen in almost every tolerably cared for fruit patch. I cannot discover an instance in which any fruit tree, having borne largely one year, consults its dignity or its ease by standing still or growing wood only the next year, as is common our way. I have seen green gages and other plum trees so thickly set with fruit that I am sure the plums would far outweigh the trees, leaves and all."

Thirty-five years ago Mr. Greeley discovered what we have known only about ten years.

A fitting companion opinion of Mr. Greeley's is that of Mr. Whitelaw Reid, as expressed December 28th, 1893, in a letter to Director-General De Young of the Mid-Winter Fair.

"In response to your invitation for a word about your California Mid-Winter International Exposition, it is a pleasure to bear witness to the peculiar fitness of San Francisco for such an enterprise. I have often had occasion, in speaking with foreigners about the varied resources of the United States, to say that we have one single State out of our forty-four which was in itself capable of supplying the world with every single product of every country that surrounds the Mediterranean basin, from Spain and Morocco on the west, to the Grecian Islands, Syria and Egypt on the east. The statement was never heard without surprise, and rarely without dispute. But when the foreigner learned that besides its wheat, its cattle and its gold, California already produced wine, raisins, prunes, figs, olive oil, olives, apricots, nectarines, almonds, oranges, lemons, and nearly every other fruit of the Mediterranean basin, and that the soil and climatic conditions which make their production possible would make it easy to grow the rest whenever a demand for them existed, his incredulity always gave way to amazement, and to the exclamation: 'And this is only one State out of forty-four! What a country!' The great port and commercial metropolis of such a State, in such a country, must be peculiarly capable of worthily following Chicago, if anybody can; and we shall all take pride in your achievement."

The Tables herewith submitted, of shipments by rail of fruits and vegetables, are compiled from statements made by Mr. C. F. Smurr, General Freight Agent, Southern Pacific Co., and Mr. H. C. Whitehead, Auditor Santa Fe System. The shipments of wine and brandy are from report of Mr. Clarence J. Wetmore, Secretary State Board of Viticulture. The shipments by sea are compiled from the *Commercial Herald and Market Review*, February 1, 1894.

I have made an effort to obtain from transportation companies all the points of shipment rather than only terminals. The object was to obtain the name of each shipping point, and the shipments from such point. But the Companies have reported their inability to give this data this year.

It should be stated, for the better understanding of the tables, what territory is embraced by the terminals.

NORTHERN CALIFORNIA.

SAN FRANCISCO AND OAKLAND—Counties north of the Bay of San Francisco, embracing the coast valleys and around the Bay.

SAN JOSÉ—Santa Clara Valley and coast counties south, and Salinas Valley.

STOCKTON—San Joaquin Valley and foothill region of that valley, including, of course, the great raisin region of Fresno.

SACRAMENTO—All the counties adjacent to Sacramento County, and the counties west of Sacramento River, to south boundary of Tehama.

MARYSVILLE—Counties contiguous to Yuba County, and the Sacramento north and east of Sacramento River.

SOUTHERN CALIFORNIA.

LOS ANGELES—Coast south of Tehachipi, and counties west to Santa Barbara, and immediately around the city of Los Angeles.

ORANGE—Orange County.

SAN BERNARDINO AND RIVERSIDE—The region around and including the two counties named.

SAN DIEGO—The extreme southern portion of the State.

SHIPMENTS OF FRUITS AND VEGETABLES BY MONTHS FROM NORTHERN CALIFORNIA, 1893.

Tons of 2,000 Pounds.

		Green Deciduous Fruits.	Dried Fruits.	Raisins.	Nuts.	Canned.	Citrus.	Honey.	Vegetables.	Potatoes.	Beans.
January...	San Francisco..		333	63	22	984		29	1,137	91	582
	Oakland					29					
	San Jose		155			500					
	Stockton		60	1,608							11
	Sacramento....		201	82		293			43	10	28
	Marysville.....		20	4		74					
February..	San Francisco..		473	144	10	891		3	1,539	127	837
	Oakland		21			108					
	San Jose		398			366					
	Stockton		91	1,195				1	35	27	
	Sacramento....		132	66		288			20		13
	Marysville.....		56	1		147					11
March	San Francisco..		304	55	13	427		3	1,346	81	590
	Oakland.......					82					
	San Jose		192			295					22
	Stockton		53	764		73				47	
	Sacramento...		50			91			34		
	Marysville.....		15	9		31					
April	San Francisco..		141	6	4	366		3	593	75	477
	Oakland										
	San Jose		16			200					
	Stockton		34	313		30				13	
	Sacramento....		26			197		1	21		
	Marysville....		1	2		14					
May	San Francisco..		81	24		631		1	75	15	414
	Oakland					12					
	San Jose		117			163				21	
	Stockton		28	93		101			177		
	Sacramento....	248	22			182	10		173		
	Marysville.....	12				24					10
June......	San Francisco..	13	58	7		431		13	242	55	293
	Oakland	280				43					
	San Jose	821	10			216					
	Stockton	566	39	87		155			292	65	
	Sacramento....	2,912	27			130	14		794	580	
	Marysville.....	497				14				44	

SHIPMENTS—CONTINUED.

		Green Deciduous Fruits.	Dried Fruits.	Raisins.	Nuts.	Canned.	Citrus.	Honey.	Vegetables.	Potatoes.	Beans.
July......	San Francisco..		27	48		486	12	26	86	326	253
	Oakland.......	60				85					
	San Jose......	374				344					
	Stockton......	1044	324	45		10			126	130	11
	Sacramento....	10,364	65			71			428	543	
	Marysville.....	973	11			61			10	23	
August....	San Francisco..	23	78	6		1,317	13	22	150	1,028	400
	Oakland.......	824	11			130					
	San Jose......	1661	345			318					
	Stockton..... .	3537	539	32		118		23		58	
	Sacramento....	13,285	148			193			304	318	
	Marysville.....	1446	86			67				11	
September.	San Francisco..		348	12	10	2,433		14	127	1,543	813
	Oakland.......	937	138			224					25
	San Jose......	2743	3,070			870			16		
	Stockton......	2887	1,428	405		47		58		123	
	Sacramento....	9787	772		10	397		1	114	372	
	Marysville.....	1099	1,092			488			22		
October...	San Francisco..	49	1,086	109	22	2,508		37	155	1,564	2,135
	Oakland.......	701	142			390					
	San Jose......	2309	8,468			1,157		11			
	Stockton......	1833	1,681	13,053		90		38	14	325	13
	Sacramento....	5240	2,659	106		732		26	133	405	49
	Marysville.....	256	787	45		231			22		
November.	San Francisco..	53	605	113	77	1,715		4	134	1,044	2,067
	Oakland.......	122	298	13		145					
	San Jose......	1557	4,273		1	807		1		10	48
	Stockton......	416	699	10,088	1	53		61		15	
	Sacramento....	1301	1,589	313	5	386		4	43	26	156
	Marysville.....	109	373	105		84					
December.	San Francisco..	67	594	107	15	612		12	739	1,517	792
	Oakland.......	30	29			13					
	San Jose.......	736	1,370	6		358				80	
	Stockton......		221	2629		97		2	12	92	23
	Sacramento....	353	565	490		345		12	12	62	
	Marysville.....	136	262	90		37					

NOTE: Endeavor was made to obtain monthly shipments from all points, but only one transportation company returned report by months. This Report embraces shipments from all terminal points in Northern California, and shows when our products are moved, for all go during these months.

SHIPMENTS BY MONTHS OF FRUITS AND VEGETABLES FROM SOUTHERN CALIFORNIA, 1893.

Tons of 2,000 Pounds.

Month.	Deciduous Green.	Dried Fruits.	Raisins.	Nuts.	Canned.	Citrus Fruits.	Honey.	Vegetables.	Potatoes.	Beans.
January...		87			56	459		189	10	882
February.		13	31	9	47	1468		147		1373
March....		1	69		1	5433	1	179		718
April.....		1				7583		554		241
May......			14			9123	1	913	45	359
June	11		25		57	5828	43	553	1974	311
July......	75	44				1455	12	174	2696	95
August ...	68	125			44	66	189	100	848	168
September	44	293			284	14	100	104	121	1448
October...	17	423	207	144	313	13	131	117	47	4908
November.	13	226	378	382	174	12	49	111	63	2666
December.	15	44	228	10	40	298	24	138	11	1239
Total tons.	243	1257	956	545	1016	31,752	550	3279	5815	14,408
Total cars.	24.3	125.7	95.6	54.5	101.6	3175.2	55	327.9	581.5	1440.8

NOTE.—I was unable to obtain all the shipments by months from all the transportation companies, and hence the monthly shipments are incomplete. The totals appear elsewhere. These tables, however, show in what months our fruits and vegetables are moved.

TOTAL SHIPMENTS, BY MONTHS, OF FRUITS AND VEGETABLES FROM NORTHERN CALIFORNIA, 1893.

Tons of 2,000 Pounds.

Month.	Green.	Dried.	Raisins.	Nuts.	Canned.	Citrus.	Honey.	Vegetables.	Potatoes.	Beans.
January...		769	1757	22	1880		29	1180	101	621
February..		1,171	1406	10	1800		4	1594	154	861
March		614	828	13	999		3	1380	128	612
April		218	321	4	807		4	614	88	477
May	260	248	117		1113	10	1	425	36	424
June......	5089	134	94		989	14	13	1328	750	293
July	12815	427	93		1057	12	26	650	1022	264
August ...	20776	1207	38		2143	13	45	454	1415	400
September.	17453	6848	417	20	4459		73	279	2038	838
October...	10388	14823	13313	22	5108		112	324	2294	2197
November.	3558	7837	10632	84	3190		70	177	1095	2271
December.	1323	3043	3322	15	1462		26	763	1751	815
Total.....	71662	37339	32338	190	25007	49	406	9168	10872	10073
Cars......	7,166.2	3,733.9	3,233.8	19	2,500.7	4.9	40.6	916.8	1087.2	1007.3

TOTAL SHIPMENTS OUT OF THE STATE BY RAILROADS OF FRUIT, VEGETABLES, AND HONEY IN 1893.

Tons of 2,000 Pounds. Given from Terminal Points only.

Place of Shipment, Northern California.	Green, Deciduous.	Dried Fruit.	Raisins.	Nuts.	Canned.	Citrus.	Honey.	Vegetables.	Potatoes.	Beans.
San Francisco	205	4128	694	173	12801	25	167	6323	7466	9653
Oakland	2954	639	13		1261					25
San Jose	10201	18414	6	1	5594		12	16	111	70
Stockton	10283	5197	30312	1	774		183	656	895	58
Sacramento..	43490	6256	1057	15	3305	24	44	2119	2322	246
Marysville...	4528	2705	256		1272			54	78	21
Total Tons.	71661	37339	32338	190	25007	49	406	9168	10872	10073
Carloads...	7166.1	3733.9	3233.8	19	2500.7	4.9	40.6	916.8	1087.2	1007.3
Southern California. Los Angeles and other points..	8291.5	3899.4	5056	1602.5	2833.7	80708	550	19471	5815	14408
Total carloads	829.1	389.9	505.6	160.2	283.3	8070.8	55	1947.1	581.5	1440.8
Total carloads from the State	7,995.2	4,123.8	3,739.4	179.2	2,784	8,075.7	95.6	2863.9	1668.7	2448.1

NOTE.—The Southern Pacific Co. reported all Southern California shipments from Los Angeles, so that this table could not give total from the several terminals. The terminals are Los Angeles, Orange, Riverside, San Bernardino and San Diego. Only one company reported potatoes and beans separately. The Santa Fe Co. did not report shipments of honey.

WINE AND BRANDY SHIPMENTS BY RAIL AND SEA. 1893.

KINDS.	1891. Gallons.	1892. Gallons.	1893. Gallons.
Wine by rail..........	5,621,179	6,330,624	8,711,684
Wine by sea	5,492,850	4,843,128	3,736,859
Brandy by rail..........	305,886	366,763	500,166
Brandy by sea	493,726	540,967	293,231
Total gallons	11,913,641	12,081,472	13,241,940
Expressed in car loads...	4,765.4	4,832.5	6,620.9

SHIPMENTS OF FRUIT BY SEA. 1893.

Canned, cases	124,522	
Dried, pounds	823,560	
Green, packages	5,162	
Raisins, "	1,244	
Total pounds		8,635,570
Total car loads		431.7

GENERAL SUMMARY AND COMPARATIVE TABLE SHIPMENTS BY RAIL AND BY SEA, OF FRUIT, WINE, BRANDY AND VEGETABLES.

KINDS.	Pounds 1890.	Pounds 1891.	Pounds 1892.	Pounds 1893.
Green Deciduous	68,084,124	96,689,100	111,688,640	159,905,000
Citrus	68,419,370	93,862,800	69,862,800	161,514,000
Dried Fruits	64,595,181	65,090,220	58,735,980	82,476,800
Raisins	41,120,330	44,954,850	53,113,320	74,788,000
Nuts	1,574,230	2,623,560	4,015,240	3,585,000
Canned Fruits	80,121,950	49,566,680	77,555,820	55,681,400
Total pounds	323,915,185	354,778,210	374,324,000	537,950,200
Carloads Fruit by rail	16,195.7	17,738.9	18,741.2	26,897.5
Carloads Fruit by sea		954	1,754.5	431.7
Carloads Fruit by rail and sea.		18,692.9	20,495.7	27,329.2
Carloads Vegetables by rail				6,978.4
Carloads Wine and Brandy by rail and sea		4,765.4	4,832.5	6,620.9
Carloads Fruit, Vegetables, Wine and Brandy, by rail and sea				40,928.5

Some deductions from the statistical tables have already been made. I may add in conclusion some further features apparent from the figures.

The shipment of green deciduous fruit was very large; it was more than double of that of 1890, and exceeded that year 4596 car loads.

The citrus fruits shipped out exceeded the green deciduous fruits. By far the largest crop of citrus fruits ever sent out of the state was for 1893. In 1891 we sent out 4693 cars, the largest quantity in any year prior to 1893; but in 1893 we sent away 8075 car loads.

The dried fruit shipments exceeded any previous year by 869 cars.

The raisin shipments show like increase. Our best previous year was 1892; but we increased in 1893 this output by 1088 car loads.

The nut shipments were less than in 1892, but more than in any previous year.

The canned fruit shipments were less than in 1890 or 1892, but more than in 1891.

Notwithstanding the discouragements to our wine and brandy growers, a steady increase in the shipments is noticeable.

The total number of cars loaded with vegetables will surprise many who have not observed this comparatively new industry. We sent away 6978 car loads in 1893.

It was predicted in these reports for 1891 that the year of 1893 would find us shipping 25,000 car loads of fruit from the state by rail. We have sent 26,897 car loads by rail, and 431 car loads by sea. Adding brandy and wine as a fruit product, and we have a total of 33,950 car loads.

When we consider that in 1880 we shipped only 546 cars, the result is indeed marvelous.

To this total should be added 6978 car loads of vegetables, shipped away as the products of our gardens, making in all 40,928 car loads.

Altogether the orchards, vineyards and gardens of California are taking a very prominent place in the commerce of our country.

The business calls for the best talent we have, as it is today the leading industry relating to the soil in California. The transportation companies especially, should give it every possible assistance.

It is to instruct, encourage and interest the tiller of the soil who is looking toward our state, that we have departed in this Annual Report from the accustomed lines on which the reports are usually made.

Respectfully submitted,

N. P. CHIPMAN, *Chairman*,

Committee on Industrial Resources of the State.

Bacon Printing Company, S. F.

5th ANNUAL REPORT

TO THE

CALIFORNIA STATE BOARD OF TRADE

UPON

The Industrial Resources of the State of California, for 1894.

BY

GEN. N. P. CHIPMAN,

CHAIRMAN, COMMITTEE ON INDUSTRIAL RESOURCES OF THE STATE,

MARCH 19, 1895.

"Fruit growing is destined to be the ultimate glory of California."
Horace Greeley, 1859.

EXHIBIT ROOMS,
575 MARKET STREET,
SAN FRANCISCO.

UNION PHOTO-ENG. CO. S.F.

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THE HICKS-JUDD CO.,
PRINTERS, BOOKBINDERS, AND PUBLISHERS,
23 FIRST STREET, SAN FRANCISCO.

ANNUAL REPORT.

San Francisco, Cal., March 19, 1895.

Hon. Eugene J. Gregory,
President State Board of Trade.

Dear Sir:—I submit herewith the Fifth Annual Report of Shipments out of the State of Fruit, Wine, Brandy, and Vegetables, by rail and by sea.

These Reports were begun for the year 1890, and have been the only complete statements of the industries embraced in them that have been given to the public.

They show not only the growth of the industries, but their distribution throughout the State.

I have endeavored to obtain the data so as to show the real point of shipment, and thus show the relative quantities moving from the various fruit-growing counties. This information would have gratified local pride, and would have been a detailed index of fruit-growing localities. But various difficulties seem to make this impracticable. The transportation companies say that the information cannot be given without involving more time and labor than they can give to its preparation.

The Reports, however, give terminal points, and that is the best that can be done.

I have been unable to get the shipments by sea from any port except San Francisco. They are not large, probably, but quite considerable from Los Angeles and San Diego, and possibly from some smaller seaports. I do not think, however, they would very greatly increase the total.

The tables are as follows:

TOTAL SHIPMENTS OUT OF THE STATE BY RAILROADS OF FRUITS AND VEGETABLES IN 1894.

Tons of 2000 Pounds. Given from Terminal Points.

Place of Shipment.	Green Deciduous.	Dried.	Raisins.	Nuts.	Canned.	Citrus.	Vegetables.	All Kinds.
NORTHERN CALIFORNIA.								
San Francisco	85.3	6,369.6	904.3	339.5	24,137.8	24.0	9,977.5	41,838.0
Oakland	5,300.3	444.4	12.2	109.1	2,049.5	.3	12.0	7,927.8
San Jose	12,942.1	15,588.5	16.8	71.6	9,292.1	2.1	483.7	38,396.9
Stockton	6,501.8	6,854.9	38,926.4	95.4	163.1	12.7	4,058.8	56,613.1
Sacramento	52,880.1	10,276.5	1,570.7	385.3	8,245.6	44.8	8,876.9	82.279.9
Marysville	4,384.2	4,993.7	322.0	182.1	3,585.4	94.3	373.1	13,934.8
Total Tons	82,093.8	44,527.6	41,752.4	1,183.0	47,473.5	178.2	23,782.0	240,990.5
Total Cars	8,209.3	4,452.7	4,175.2	118.3	4,747.3	17.8	2,378.2	24,099.0
SOUTHERN CALIFORNIA.								
Los Angeles County	3,726.2	4,540.3	1,193.5	2,259.0	4,489.1	29,375.3	16,784.6	62,368.0
Orange County	193.2	778.7	212.5	472.5	5.0	4,735.5	1,474.0	7,871.4
San Bernardino County	2,983.3	1,264.6	1,300.0	15.0	686.7	5,418.0	517.0	12,184.6
Riverside County	731.7	60.0	1,287.5	....	1.8	18 574.5	110.0	20,765.5
San Diego	54.0	78 0	1.162.5	....	6.5	682.5	99.0	2,082.5
Total Tons	7,688.4	6,721.6	5,156.0	2,746.5	5,189.1	58,785.8	18,984.6	105,272.0
Total Carloads	768.8	672.1	515 6	274.6	518.9	5,878.5	1,898.4	10,527.2
Total Carloads from State by Rail	8,978.1	5,124.8	4,690.8	392.9	5,266.2	5,896.3	4,276.6	34,626.2
By Sea	91.0	57.9	4.6	2.4	769 0	....	410.0	1,334.9
Total Carloads	9,069.1	5,182.7	4,695.4	395.3	6,035.2	5,896.3	4,686.6	35,961.1
Carloads canned vegetables not included								89.0
Total								36,050.1

General Summary and Comparative Table Shipments by Rail and by Sea, of Fruit, Wine, Brandy, and Vegetables for Five Consecutive Years.

Kinds.	Pounds 1890.	Pounds 1891.	Pounds 1892.	Pounds 1893.	Pounds 1894.
Green Deciduous	68,084,124	96,689,100	111,688,640	159,905,000	179,574,800
Citrus	68,419,370	93,862,800	69,862,800	161,514,000	117,928,400
Dried Fruits	64,595,181	65,090,220	58,735,980	82,476,800	102,510,800
Raisins	41,120,330	44,954,850	53,113,320	74,788,000	93,826,400
Nuts	1,574,230	2,623,560	4,015,240	3,585,000	7,829,000
Canned Fruits	80,121,950	49,566,680	77,555,820	55,681,400	105,325,200
Total pounds	323,915,185	354,778,210	374,324,000	537,950,200	606,994,600
Carloads Fruit by rail	16,195.7	17,738.9	18,741.2	26,897.5	30,349.7
Carloads Fruit by sea		954	1,754.5	431.7	924.9
Carloads Fruit by rail and sea		18,692.9	20,495.7	27,329.2	31,274.5
Carloads Vegetables by rail				6,978.4	4,276.6
Carloads Vegetables by sea					410
Carloads Wine and Brandy by rail and sea		4,765.4	4,832.5	6,620.9	7,663.5
Carloads Fruit, Vegetables, Wine, and Brandy by rail and sea				40,928.5	43,624.7
Carloads Canned Vegetables					89
Total export product of orchard, garden, and vineyard (carloads)					43,713.7

Mr. Clarence J. Wetmore, Chief Executive Officer of the Board of Viticulture, reports to me shipments of wine and brandy as follows, for 1894:

	Cases.	Gallons.	Value.
BY RAIL.			
Brandy	1,280	442,803	$ 677,005
Wine	34,312	11,454,683	4,719,121
BY SEA.			
Brandy	513	358,774	338,323
Wine	12,672	2,576,722	1,106,831
Total Brandy	1,793	801,577	$1,075,323
Total Wine	46,984	14,031,405	5,825,952

WINES AND BRANDY REPORTED BY THE RAILROAD COMPANIES FOR 1894.

(Tons of 2000 Pounds.)

PLACE OF SHIPMENT.	Brandy.	Wine.
NORTHERN CALIFORNIA.		
San Francisco	1,493.3	35,555.4
Oakland	30.8	1,000.0
San Jose	11.2	3,077.4
Stockton	109.9	2,924.2
Sacramento	274.4	13,526.3
Marysville	256.6	119.9
Total	2,176.2	56,203.2
Cars	217.6	5,620.3

LOS ANGELES.

Wine and Brandy	3,582.8	Cars	358.2

WINE AND BRANDY.

Carloads by rail	6,196.0
By sea	1,467.5
Total	7,663.5

The tables of shipments by rail are compiled from data politely furnished me by officers of the transportation companies.

Mr. Clarence J. Wetmore, Manager of the State Board of Viticulture, has kindly given me shipments as compiled by him from his reports of wine and brandy shipped by rail and by sea.

The shipments of fruits and vegetables by sea I have compiled from the annual number of the *San Francisco Commercial Herald and Market Review.*

The shipments from the several Counties of Southern California were not returned to me by Counties, except by one company. The other company treated all shipments south of the Tehachapi Mountains as from one point—Los Angeles.

I have continued the plan of former Reports in keeping the shipments from Northern California and Southern California separate.

However much we may deprecate this separation of the two regions by name, it is now too late to ignore the fact that they are known not only here but in the East by such designation, and I do not think this nomenclature will ever be abolished.

It is quite proper, therefore, that our Reports, so long as it can be done, should group the output by these divisions. Nothing can more completely dispel false claims made by either region than the actual figures. They show not only quantities but varieties from each. The distribution of fruit shows the distribution of climatic conditions.

When we see that in 1894 nine carloads of oranges were shipped from Marysville, in the extreme North, and that all other fruits on the list appear in large quantities from that region, we can safely conclude that California enjoys practically the same climate for the entire length of its valley region. Where nine carloads of oranges may grow nine hundred can be made to grow. We have happily outgrown local prejudices, and are finding it more profitable to tell the truth about each other than to mislead by mutual detraction.

SHIPMENTS BY SEA.

The exports of the products of our orchards, vineyards, and gardens by sea to foreign ports are significant, considering that we are obliged to almost circumnavigate the globe to reach European countries.

England took 120,728 cases of canned fruit; Australia, 16,594 cases; New Zealand, 5,916. These three countries took all but 30,613 cases shipped to foreign ports. We did not send a case to France, and only 136 cases to Germany. Our neighbor, Mexico, took but 106 cases. British Columbia bought only 952 cases, and Central America but 758 cases. China took 2139 cases only, and Japan but 1134. There is something the matter with our merchants when they fail to sell a case of canned fruit in France, and sell only 136 cases in Germany.

I venture to invite the young men who aspire to enter the field of commerce to carefully study the Annual Number of the *Commercial Herald and Market Report*, showing our trade of 1894. I can see a vast field to be exploited for California products. The canned fruit industry of California has been in the dumps for two or three years, and will continue to be until the canners enlarge the horizon of their commercial vision. I cannot understand, for example, why we could ship over 130,000 pounds of dried fruit around Cape Horn to Germany and only 136 cases of canned fruit.

Our trade of all kinds with France is ridiculously small. It amounted in 1894 to less than $50,000 of Californian products, of which about $43,000 were barley and wheat.

I must be pardoned a moment's departure from the strict line of this Report to notice some of the curious features of our trade.

Ireland, for example, bought more from us in value than all the balance of Europe. She purchased twenty-five per cent. in value of all our exports ; but it was chiefly wheat and barley, which gave us but little profit. Russia did not buy from us a dollar's worth of anything. She had some exhibits at our Midwinter Fair, and gets into the shipping lists only through these returned goods. Russia is a large consumer of the very products that have made California famous—nuts, raisins, olives and olive oil, prunes, canned goods, wine and brandy. Why will not some wide-awake California merchant go to St. Petersburg and offer some of our fruits and wines?

I am not surprised that Italy and Spain got into our export lists the same way as Russia did, and purchased nothing, but I cannot account for our failure to reach Russia except through sheer neglect and indifference.

I suppose that some of our people believe that the trade in Alaska is monopolized by California and amounts to something. The record shows one package of ammunition worth $25.

I find that our canned fruits are sent to Bombay and Calcutta. Indeed, our fruits, wines, and brandies find their way in limited amounts to most of the commercial ports of the world, but in no sort of proportion to inhabitants, and in no relation to what would seem to be a demand when once introduced. We have found it true in our own country that our market expands in proportion to the effort to place our products before consumers. The world's markets are our markets when we shall have given some of our zeal in planting to the problem of selling.

In my report of shipments for 1891, I worked out a table giving quantity and value for all foreign countries or ports. A comparison of 1891 with 1894 will show a falling off in canned fruits, but an increase in all others. The quantity shipped is large enough to show that there is a demand. We have perceptibly increased the sales of dried fruit. We now export by sea from San Francisco to foreign ports nearly ten per cent. of the entire product of dried fruit excluding raisins. I regard this as quite significant. In 1891 the amount was 747,914 pounds. In 1894 it was 923,522 pounds. In 1891 we consigned to only sixteen points on the globe. In 1894 to forty-two points. We more than doubled the shipments to England, and we increased the shipments to Australia over 100,000 pounds.

A notable feature are the exports of vegetables by sea, of which we sent away over 8,000,000 pounds, most of which were beans, onions, and potatoes.

SHIPMENTS EAST BY RAIL.

The comparative table for the years 1890 to 1894, both inclusive—a period of five years—shows the steady advance of the industry. The year 1894 compared with 1890 shows the following increase:

Green deciduous fruits	5,557.4	carloads,	163.7	per cent.
Citrus	2,475.4	"	75.0	" "
Dried	1,895.7	"	58.7	" "
Raisins	2,635.3	"	128.1	" "
Nuts	312.7	"	397.3	" "
Canned	1,260.0	"	31.4	" "
Average increase all kinds	14,158.9	"	87.7	" "

The shipments of citrus fruit fell off in 1894, as compared with 1893, in carloads 2,179.2, by reason of the cold wave of 1893-4, whereas there should have been an increase, I think, nearly equal to that in deciduous fruits. But for this 1894 would have shown at least 3,000 carloads more than we shipped, and this would have made our combined shipments of all kinds of fruit by rail more than double that of 1890.

The canned fruit sent out by rail in 1894 was nearly double that of 1893. Part of this shipment was stock carried over probably, but the increase of the output was large.

This industry is on the least satisfactory basis of all our fruit interests, unless it be green fruit. There seems to be no adequate cause for the great fluctuation in the output. The value of our canneries to the orchardist is conceded to be very considerable, and they should receive all possible encouragement.

I am told by gentlemen in the business that there is profit in packing first-grade goods, but a loss in the lower grades. Would this not suggest sending the smaller sizes to the dry-house, and packing only the best? I have no doubt but that the superior quality and comparative cheapness of our dried fruits have much to do with the dull market for canned goods.

There are many consumers, however, to whom these considerations are nothing, but they must have only the best. For such goods there is a profit to the grower and the canner, for the canner can better afford to pay the grower two or two and a half cents a pound to meet this want than three-quarters or one-half cent a pound to make so-called pie fruit and other rubbish into which large capital is placed at actual loss.

The green fruit shipments have increased 163.7 per cent. since 1890. In 1894 we shipped 984 cars more than in 1893, but we made less money on the business. Low prices, dull market, and increased cost of transportation because of increased refrigeration charges left no profit in many cases, and but little in others. The exigencies of this branch of our industry have brought the best intelligence among horticulturists face to face with the transportation companies to devise some relief. Devices by which refrigeration is to be supplanted by cheaper processes of preserving fruit in transit and faster time for ventilated cars are promised by the railroad companies as a solution of the trouble. Let us hope that selfishness, if no higher motive can be invoked, will lead the transportation companies to maintain green fruit shipments at freight rates that will allow a profit to the grower.

There has never been an instance within my knowledge where any railroad company deliberately choked an important industry to death that was giving it profitable business. I ground my faith in the future profits of the green fruit shipments, as of other business within railroad control, upon that valuable lesson conveyed to us by the experience of the idiot who killed the goose that laid the golden egg.

Without presenting in detail the results of the past five years, as shown by the tables, I am in no wise discouraged by the experiences of the past two years.

Let it not be forgotten that we have been passing through a period of financial depression such as this country has never known and in which the whole civilized world seems to have participated. If fruit-growers had made very much money while all others were losing, we could hardly defend the industry as being planted on safe principles. The fact is, however, that the past year proved to be a reasonably good one for the growers. That the market would take our increased product of 1894 at all, in face of universal and individual want and distress, is, to my mind, the highest proof that we are not overproducing, and that under normal conditions fruit-growing will continue to be the chief and most profitable occupation in California related to the soil.

Our immunity from severe cold, such as has swept over the entire continent east of the Sierras during the past winter, must emphasize the claim we have always made for this State as a place of residence.

We have only to show that profitable and agreeable employments are possible here to fill California rapidly with home-seekers so soon and so rapidly as they can relieve themselves without too great loss from their present environments.

Horticulture is doubtless our greatest attraction in agriculture and offers the most delightful of all rural occupations. Its charm lies partly in the æsthetical atmosphere by which it is surrounded and which appeals strongly to the rudest nature. The evolution of a fruit crop from the pruning knife to the picking basket is one succession of agreeable and inspiring surprises. There is with us scarcely a month in the year when we cannot look out upon the fruit and the flowers and luxuriant foliage of some one or more of our wonderful range of varieties. Climatic conditions nowhere else to be found exist here and give not only great variety but great certainty to the industry. These considerations, added to the fact that many of our fruits cannot be produced elsewhere on this continent in commercial quantities, give assurance of profitable employment.

But these same conditions make California exceptionally a favorable place in which to practice a generally diversified agriculture.

We hold rank well in front as producers of cereals. Our wheat feeds Europe, and our barley is made into beer in Germany. We are large growers of wool and mutton sheep, and cattle and horses.

Our resources in timber are very large, and our lumber industry is an important one. Our mines are increasing in value and importance. We have large deposits of petroleum. Our dairy interests are extensive. Our garden products are assuming commercial importance. Our advantages for producing beet sugar are superior to those of any State in the Union.

Indeed, there are but few occupations in which man may not engage here profitably and at the same time be surrounded with all possible comforts that can contribute to his physical pleasure and well being.

It is to this comparatively new and yet but partially occupied field that this Board continues to invite immigration.

N. P. Chipman,
Chairman Committee on Industrial
Resources of California.

The foregoing report having been read in the presence of the Directors, Mr. W. H. Mills offered the following :

Resolved, That the report of the Chairman of the Committee on Industrial Resources is hereby endorsed and approved by the California State Board of Trade.

J. S. Emery,
L. C. McAfee,
W. H. Mills,
B. M. Lelong,
J. A. Morrissey,
S. J. Stabler,
J. P. Irish,
L. W. Buck,
C. M. Wooster,
Mark L. McDonald.

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TO THE

CALIFORNIA
STATE BOARD OF TRADE

UPON

The Industrial Resources of the State of California

FOR 1895.

BY

GEN. N. P. CHIPMAN,

CHAIRMAN COMMITTEE ON INDUSTRIAL RESOURCES OF THE STATE.

SUBMITTED MARCH 10, 1896.

"Fruit growing is destined to be the ultimate glory of California."
Horace Greely, 1859.

EXHIBIT ROOMS:
16 POST STREET,
San Francisco.

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16 POST STREET,
San Francisco.

THE PACIFIC RURAL PRESS,
220 Market St., San Francisco.

ANNUAL REPORT.

San Francisco, March 10, 1896.

To the California State Board of Trade:

I submit herewith the Sixth Annual Report of Shipments out of the State of Fruit, Nuts, Wine, Brandy and Vegetables by rail and by sea during the year 1895.

The following tables show in such detail as I was able to procure the data, both as to kinds of products and points from whence shipped. I am indebted to Mr. C. F. Smurr, General Freight Agent, for data from which shipments by the Southern Pacific Company are compiled, and to Mr. H. C. Whitehead, Auditor of the Santa Fe system, for data of shipments by it.

The tables show that we sent out of the State during the year of fruit, nuts, wine, brandy and vegetables 48,871.1 carloads of ten tons each. This is a gain over 1894 of 5346.4 carloads, and a gain over 1893 of 8042.6 carloads.

The shipments of fruit alone have increased from 16,195.7 carloads in 1890 to 37,160.7 carloads in 1895.

In my report for 1891 I predicted that within five years our shipments of fruit alone would reach 30,000 carloads. This prediction was received with incredulity. It will be seen that in four years we have reached an export of over 37,000 carloads.

Compared with 1894, fresh deciduous fruits by rail fell off 2353 carloads in 1895.

Dried fruits by rail gained 1007 carloads; citrus fruits gained

Total Shipments Out of the State by Railroads of Fruits and Vegetables in 1895.

Given from Terminal Points. Tons of 2000 Pounds.

Place of Shipment.	Green Deciduous.	Dried.	Raisins.	Nuts.	Canned.	Citrus.	Vegetables	All Kinds.
Northern California.								
San Francisco	65.5	5,794.	453.8	524.5	11,535.8	22.9	8,353.6	26,750.1
Oakland	2,767.4	662.9	....	62.	2,953.5	....	168.8	6,614.6
San Jose	9,927.1	25,873.7	11.9	134.6	5,988.	....	863.	42,798.3
Stockton	7,439.9	8,431.6	42,066.8	55.3	128.8	592.6	1,448.2	60,163.2
Sacramento	36,247.4	8,086.4	692.9	280.1	5,181.4	164.3	5,440.9	56,093.4
Marysville	2,219.1	3,844.7	220.5	329.9	3,528.4	578.7	473.3	11,194.6
Total tons	58,666.4	52,693.3	43,445.9	1,386.4	29,315.9	1,358.5	16,747.8	203,614.2
Total cars	5,866.6	5,269.3	4,344.5	138.6	2,931.5	135.8	1,674.7	20,361.4
Southern California.								
Los Angeles Co	3,023.8	6,339.3	651.9	1,345.8	1,698.2	64,839.	15,945.8	93,843.8
Orange Co	1,666.4	395.	350.	487.5	22.	8,242.5	2,618.	13,781.4
San Bernardino Co	2,501.8	1,299.2	537.5	15.	252.9	10,179.5	341.	15,126.9
Riverside Co	370.4	349.6	562.5	....	1.6	29,967.	363.	31,614.1
San Diego Co	26.	250.	837.5	....	5.3	1,239.	121.	2,478.8
Total tons	7,588.4	8,633.1	2,939.4	1,848.3	1,980.	114,467.	19,388.8	156,845.
Total carloads	758.8	863.3	293.9	184.8	198.	11,446.7	1,938.8	15,684.5
Total from north and south	66,254.8	61,326.4	46,385.3	3,234.7	31,295.9	115,825.5	36,136.6	360,459.2
Total carloads	6,625.4	6,132.6	4,638.5	323.4	3,129.5	11,582.5	3,613.6	36,045.9
Carloads fruit by sea	....	60.	4.8	....	1,010.	....	40.	1,114.8
Total carl'ds by rail and sea	....	....	....	....	....	....	....	37,160.7

Note.—One of the railroad companies reported all shipments from southern California from terminal point of Los Angeles. The several counties named do not, therefore, get full credit for shipment from their localities.

General Summary and Comparative Table of Shipments by Rail and by Sea of Fruits, Wine and Brandy, and Vegetables for Six Consecutive Years.

(In Tons of 2000 Pounds.)

Kinds.	1890.	1891.	1892.	1893.	1894.	1895.
Green deciduous fruits	34,042.	48,344.5	55,844.3	79,952.5	89,787.4	66,254.8
Citrus fruits	34,209.6	46,931.4	34,931.4	80,657.	58,964.2	115,825.5
Dried fruits	32,297.5	32,545.1	29,867.9	41,238.4	51,255.4	61,326.4
Raisins	20,560.1	22,477.4	26,556.6	37,394.	46,913.2	46,385.3
Nuts	787.1	1,311.7	2,007.6	1,792.5	3,964.5	3,234.7
Canned fruits	40,060.9	24,783.3	38,777.9	27,840.7	52,662.6	31,295.9
Total carloads fruit by rail	16,195.7	17,738.9	18,741.2	26,897.5	30,349.7	36,045.9
Total carloads fruit by sea		954.	1,754.5	431.7	924.9	1,114.8
Total carloads fruit by rail and sea		18,692.9	20,495.7	27,329.2	31,274.5	37,160.7
Total carloads vegetables by rail				6,978.4	4,276.6	3,613.6
Total carloads vegetables by sea					410.	40.
Total carloads wine and brandy by rail and sea		4,765.1	4,832.5	6,620.9	7,663.5	8,056.8
Total carloads fruit, vegetables, wine and brandy				40,928.5	43,624.7	48,871.1

SHIPMENTS IN 1895 BY SEA FROM SAN FRANCISCO.

Compiled from *Journal of Commerce.*

SAN FRANCISCO.	Cases.	Pounds.	Packag's.	Sacks.	Gallons.
Canned fruit	403,976				
Dried fruit		1,198,276			
Raisins			4,808		
Green fruit			43,843		
Nuts				919	
Vegetables, green			2,746		
Vegetables, canned	15,513				
Brandy	526				83,611
Wine	16,717				4,000,387

Fruit in carloads	1,114.8
Vegetables in carloads	40.
Wine and Brandy in carloads	1,886.6
Total all kinds by sea in carloads	3,041.4

WINE AND BRANDY SHIPMENTS BY RAIL, 1895.

NORTHERN CALIFORNIA.	Wine, pounds.	Brandy, pounds.	Wine and Brandy.
San Francisco	64,359,320	2,684,610	
Oakland	1,791,990	25,920	
San Jose	6,265,710	77,500	
Stockton	6,274,290	769,520	
Sacramento	29,309,990	504,580	
Marysville	695,190	694,110	
Total	108,696,490	4,756,240	
Carloads	5,434.8	237.8	
Total Wine and Brandy			5,672.6

SOUTHERN CALIFORNIA.	Wine, pounds.	Brandy, pounds.	Wine and Brandy, not seggregated, pounds.
Los Angeles	4,042,910	168,070	
All points			5,742,000
Total carloads	202.1	8.4	287.1
Total carld's Wine and Brandy.			497.6

Total carloads by rail Wine and Brandy from State	6,170.2
Ditto, by sea	1,886.6
Total by rail and by sea in carloads	8,056.8

5550 carloads, the total being 11,446 carloads—the largest output in any year.

Raisins have increased steadily, although there was a slight falling off in 1895 from 1894. The raisin crop now averages about 4600 or 4700 carloads.

Wine and brandy shipments have increased each year, and in 1895 were nearly double those of 1891.

The canned fruit shipments fell off about 40 per cent.

Since I began to report shipments of vegetables in 1893, the exports have fallen off nearly 50 per cent.

The gain in 1895 over 1894 of fruit shipments is fully accounted for in the gain of citrus fruits alone. The gain and loss of other fruits about equalize each other. The orange crop of 1894 was cut short by frost, and hence the apparent large increase in 1895. The crop of deciduous fruits was shortened by frost in 1895, which accounts for the lack of normal increase over 1894. My belief is that with a full output of all kinds of fruit trees now in bearing we would have fully 50,000 carloads for export.

Our vegetables, wine and brandy would add 12,000 carloads.

I now make the prediction that we shall export over 75,000 carloads in the year 1900 of the products of our orchards, vineyards and gardens.

An encouraging feature of the report is the showing that there were sent away from northern California 135.8 carloads of oranges in 1895. The output is much larger, but as the northern California oranges ripen earlier than in southern California by about one month, the local demand takes the greater part of the product. In 1891 we exported only four carloads from the north.

In 1890, it will be remembered, I undertook to show that the value of our fruit exports was greater than the value of our wheat exports. The figures were a surprise to everyone who had not carefully studied the situation. Fruit then brought prices nearly double the prices of 1895. Wheat was figured at 70 cents a bushel. Our fruit then exceeded in value our wheat by half a million dollars. Since then the wheat has fallen off in value and also in yield. Fruit has fallen in value, but has more than doubled in yield.

I will not undertake to conceal the fact that fruit growing has had a period of discouragement in California that has disheartened a great many growers, and to some extent has put a check upon immigration. But I do not believe that the situation, intelligently considered, should shake our faith in the industry or lead us to slacken our efforts in presenting California as the most promising field for diversified agriculture, and the most desirable country on this continent in which to build up rural homes.

It would have been most anomalous if fruit had remained at the prices of 1890 or 1891 after the universal business paralysis had spread over our country, as it did nearly every country of the globe. The simple and cogent fact that explains satisfactorily the falling off of exports in all forms of agriculture is that the people of all classes were forced, and still are forced, to the most unbending economy in living. Not only were prices greatly reduced, but consumption fell off. However cheap food products became, there was a limit to their purchase. When some of our dried California peaches can be bought by the carload for 2½ cents a pound, and no buyers ; when some of our French prunes sell for 3 cents a pound in the face of the fact that importations have ceased, we must conclude that a condition exists wholly abnormal, and that should not form the basis upon which to forecast the future of the fruit industry.

All we need to bring about a complete restoration of prosperity in this business, as in others, is that the ordinary good times with which our country is usually blessed shall return ; and no intelligent man can doubt that this will happen.

But I assert that the fruit growers on small tracts who have with their families done their own work, and have diversified their products, are in a much better condition than any other class of farmers in the State.

Good, choice, well-prepared fruit has sold at a profit to the grower even during the hard times.

A most important change has come about under the financial stress of the past three years. Lands have fallen in value here, and the price of nursery fruit trees has greatly diminished. Large land holdings are melting away, and homes can be purchased where it was not possible before, and at very reasonable prices.

The highly wrought pictures of a few years ago, commending to the home seeker the purchase of fruit land at $100 to $500 an acre, costing him $75 to $100 more per acre to build his orchard, and promising him a net annual profit of $200 to $500 per acre when his trees should come into bearing, have been ruthlessly shattered. The invitation to the capitalist to invest in large orchard syndicates, promising dividends equal to a paying gold mine, has met a rude recoil. It was never intended by the Almighty that either the earth or the immediate fruits of the earth should be made the subject of purely speculative investment. Large syndicate farming in any form has never succeeded, and never should. Cornering the food products of the earth has never been successful, and never should be.

It is now possible for the home seeker to purchase almost anywhere in California good land at prices not much greater than the land he now owns in the Middle and Western States can be sold for. He can buy his nursery trees nearly as cheap as they are sold elsewhere, and at about one-quarter the price of a few years ago. If he can obtain water with which to irrigate his land, he can maintain himself while his orchard is growing. All the necessary equipment of his new home—his farm implements, his building material, his live stock, his necessary articles of consumption—he can now buy in California nearly as cheaply as in any Western State.

All the charms of our matchless climate remain the same yesterday, to-day and forever. There was never a time, and I doubt if there ever will be a time, more favorable than the present for the tiller of the soil in the frozen regions, who desires to escape their rigors, to invest and make his home in California.

I fully believe that the limits of profitable fruit growing in California have not by any means been reached, nor do I think they are likely to be. The reasons for this belief I have many times stated in these reports and elsewhere, and I need not repeat them. The reasons are as sound to-day as they were five years or three years ago. They rest upon unchangeable laws of nature; upon conditions surrounding us and surrounding the regions where our markets are that cannot change. California, in my judgment, must remain the orchard of America. Periods of depression may diminish profits; accidental good fruit crops in the Eastern States may occasionally shorten our market and lessen prices, but, as a permanent and generally profitable industry, fruit growing in California will continue to be the great attraction and the chief industry relating to the soil. But the conditions existing here that make this true will also make this the great field for a perfectly diversified agriculture and for intensive farming.

If you will look over the catalogue of the products of the soil of France or of Italy or anywhere around the Mediterranean basin, you will find none, however profitable, that may not here be made equally so.

I will not prolong this report by scheduling the various products of the earth that mankind must have and that find their home here. I invite the intelligent tiller of the soil to study California, as he may do now. The time is approaching when intelligence must direct the agriculturist, if he would not be a slave. By intelligent farming he may do well in many States of the Union, but here in California I am convinced is the field for a higher intelligence in his profession, and greater rewards await its exercise here than can elsewhere be found.

N. P. CHIPMAN,

Chairman Committee on Industrial Resources.

7th ANNUAL REPORT

TO THE

CALIFORNIA STATE BOARD OF TRADE

UPON

The Industrial Resources of the State of California

FOR 1896.

BY

GEN. N. P. CHIPMAN,

CHAIRMAN COMMITTEE ON INDUSTRIAL RESOURCES OF THE STATE.

SUBMITTED MARCH 9, 1897.

7

"Fruit growing is destined to be the ultimate glory of California."
Horace Greeley, 1859.

EXHIBIT ROOMS:
16 POST STREET,
San Francisco.

ANNUAL REPORT

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SEVENTH ANNUAL REPORT

—OF—

Fruit Shipments from California.

March 9, 1897.

To the State Board of Trade,
San Francisco, California:

I present herewith a report of the shipments from the State of fruit, wine, brandy and vegetables for 1896, being the seventh consecutive annual report of like shipments.

These reports are designed particularly to record the growth and development of the fruit industry in this State. I submit four tables:

First: A table of fruit shipments by rail from Northern and Southern California, given separately, from terminal points.

Second: A table of shipments of wine, brandy and vegetables by rail.

Third: A table of shipments of fruits, vegetables, wine and brandy by sea.

Fourth: A summary and comparative table for seven consecutive years.

SHIPMENTS OF FRUIT OUT OF THE STATE BY RAIL IN 1896.

Tons of 2000 Pounds.

PLACE OF SHIPMENT.	Green Decidu'os.	Citrus.	Dried.	Raisins.	Nuts.	Canned.	All Kinds.
NORTHERN CALIFORNIA.							
San Francisco	33.0	19.5	3,644.3	239.3	300.5	11,379.4	15,616.0
Oakland	2,436.1	....	377.0	....	97.1	3,119.1	6,029.3
San Jose	6,473.0	....	22,225.2	3.0	54.6	5,588.5	34,344.3
Stockton	6,798.1	379.5	9,038.3	30,533.0	86.8	1,560.5	48,396.2
Sacramento	36,013.6	50.4	5,076.3	271.1	510.3	4,409.0	46,330.7
Marysville	1,054.3	362.1	2,963.0	136.6	1.3	3,738.9	8,256.2
Total Tons	52,808.1	811.5	43,324.1	31,183.0	1,050.6	29,795.4	158,972.7
Total Carloads	5,280.8	81.1	4,332.4	3,118.3	105.0	2,979.5	15,897.2
SOUTHERN CALIFORNIA.							
Los Angeles	801.5	52,300.5	2,814.6	432.8	2,822.4	2,558.2	61,730.0
Orange County	552.0	7,020.0	348.0	200.0	1,030.0	30.1	9,180.1
Riverside County	12.0	23,484.0	72.0	287.0		...	23,855.0
San Bernardino County	2,484.0	13,476.0	972.0	900.0	20.0	299.4	18,151.4
San Diego County	....	2,064.0	60.0	975.0	...	8.2	3,107.2
Total Tons	3,849.5	98,344.5	4,266.6	2,794.8	3,872.4	2,895.9	116,023.7
Total Carloads	384.9	9,834.4	426.6	279.4	387.2	289.5	11,602.3
Carloads From State	5,665.7	9,915.5	4,759.0	3,397.7	492.2	3,269.0	27,499.5
Carloads by Sea	98.0	....	93.2	45.6	4.9	1,285.5	1,527.2
Total Carloads by Sea and Rail	5,763.7	9,915.5	4,852.2	3,443.3	497.1	4,554.5	29,026.7
Total Carload of Fruit by Sea and Rail	....	.....	....	...	...	......	....

NOTE: The railroad company reported all shipments from Southern California from the terminal point of Los Angeles. The several counties named do not, therefore, get full credit for shipments from their localities.

SHIPMENTS OUT OF THE STATE BY RAIL IN 1896 OF WINE, BRANDY AND VEGETABLES. Tons of 2000 Pounds.

PLACE OF SHIPMENT.	Wine.	Brandy.	Wine and Brandy not Segregated.	Veg'bles.
NORTHERN CALIFORNIA.				
San Francisco	31,903.9	1,656.4	. ...	2,672.7
Oakland	821.3	5.8	...	191.6
San Jose	2,389.8	18.6	...	85.9
Stockton	3,619.5	235.9	....	704.8
Sacramento	11,865.	256.5	.	3,628.1
Marysville..	868.	355.7		112.4
Total Tons	51,467.5	2,578.9	....	7,395.5
SOUTHERN CALIFORNIA.				
Los Angeles	3,014.6	66.3	1,944.	8,875.8
Orange County		...	24.	1,408.0
Riverside County	......	...	..	264.0
San Bernardino County	..	..	576.	704.0
San Diego	.		120.	55.0
Total Tons	3,014.6	66.3	2,664.	11,306.8
Total by rail from State	54,482.1	2,644.2	2,664.	18,702,3
Total Carloads by rail	5,448.2	264.4	266.4	1,870.2

SHIPMENTS OUT OF THE STATE OF FRUITS AND VEGETABLES BY SEA IN 1896. Tons of 2000 Pounds.

Place of Shipment.	Green Decid's.	Citrus.	Dried.	Raisins.	Nuts.	Can'd.	Vegetables.
San Francisco	930.7	......	932.1	456.8	49.6	12,855 7	4,877.2

SHIPMENTS OUT OF THE STATE OF WINE AND BRANDY BY SEA IN 1896. Tons of 2000 Pounds.

Place of Shipment.	Wine.	Brandy.		
San Francisco	15,990.6	309.9		

GENERAL SUMMARY AND COMPARATIVE TABLE OF SHIPMENTS BY RAIL AND BY SEA OF FRUITS, WINE BRANDY AND VEGETABLES FOR SEVEN CONSECUTIVE YEARS.

Tons of 2000 Pounds.

Kinds.	1890.	1891.	1892.	1893.	1894.	1895.	1896.
Green Deciduous	34,042.0	50,548.9	59,374.5	80,112.3	90,692.2	66,254.8	57,638.3
Citrus Fruits	34,209.6	46,921.4	34,857.5	80,757.0	58,964.0	115,825.5	99,156.0
Dried Fruits	32,297.5	32,919.0	29,762.2	45,386.2	51,828.2	61,386.4	48,522.8
Raisins	20,560.1	22,779.1	26,673.4	37,409.9	46,954.4	46,390.1	34,434.6
Nuts	787.1	1,358.9	2,061.9	1,796.5	3,953.5	3,234.7	4,972.6
Canned Fruits	40,060.9	32,395.0	55,273.7	31,626.3	60,352.6	41,395.5	45,546.9
Carloads Fruit by rail and by sea	16,195.7	18,692.2	20,800.3	27,708.8	31,274.4	33,547.2	29,026.7
Carloads Vegetables by rail	None reported.	None reported.	None reported.	6,978.4	4,276.6	3,613.6	1,130.6
Carloads Vegetables by sea	None reported.	None reported.	None reported.	None reported.	410.0	40.0	487.7
Carl'ds Wine and Brandy by sea & rail	None reported.	4,765.1	4,832.5	6,620.9	7,663.5	8,056.8	7,609.0
Carloads Fruit, Vegetables, Wine and Brandy by rail and sea	16,195.7	23,347.3	25,632.8	40,928.5	43,624,7	45,257.4	38,254.0

The tables show the following comparative gain and loss in 1896 over 1895.

Carloads.	1895.	1896.	Loss.	Gain.
Green Deciduous	6.625.4	5,763.8	861.6	....
Citrus Fruits..............	11,582.5	9,915.6	1,666.9	....
Dried Fruits	6,138.6	4,852.2	1,286.4	....
Raisins....................	4,639.0	3,443.4	1,195.6	....
Nuts......................	323.4	497.2	....	173.8
Canned Fruits.............	4,139.5	4,554.6	....	415.1
Total....................	33,448.4	29,026.8	5,010.5	588.9
Net loss carloads	....	....	4,421.6	....

Comparing 1896 with 1894, there was a net loss in 1896 of 2,247.7 carloads.

The gain in 1895 over the output for 1894 was chiefly in citrus fruits.

The loss in 1896 over the output of 1895 seems quite large. Of the 4,421 carloads, representing the loss, 1,666 carloads are citrus fruits; 861 cars green deciduous fruits; 1,286 dried fruits, and 1,195 raisins.

The loss in deciduous fruits is due to a very general and unprecedentedly late frost in April 1896. The citrus fruit crop was cut down by a slight frost the year before. The falling off in raisins I think is due to the depression in the industry and low prices, which resulted in a failure to cure the crop in many instances.

There is a notable feature of the losses and gains that should not be overlooked, to-wit, that despite the general impression that the fruit crop was badly hurt all over the State by frost in 1896, the actual falling off of deciduous fruits attributable to frost was less than twelve per cent. This is a reassuring fact that should restore confidence in orchard planting.

The steady increase in the output of citrus fruits during a period when our Florida competitors have met with such disaster, and when, too, alarming reports have gone abroad concerning the injuries to our orange and lemon groves, should set at rest the vague fears heretofore expressed as to the permanency of this branch of our fruit industry.

The reports furnished me by the transportation companies do not give all the kinds of dried fruits stated separately. I am able to give, with close approximation, however, the output of prunes. There were shipped from the following points, as shown below, by rail:

San Francisco	691,230 pounds.
Oakland	451,320 pounds.
San Jose.............. ...	38,510,690 pounds.
Stockton..................	5,048,820 pounds.
Sacramento...............	4,762,170 pounds.
Marysville	816,580 pounds.
Los Angeles	1,385,190 pounds.
Total..............	51,666,000 pounds.

Of the dried fruit shipped from Southern California, in which prunes are included and not segregated, there were 3,816,000 pounds.

I am quite sure that at least 3,000,000 pounds of these were peaches, apricots, pears, grapes, figs and nectarines, and that not more than 816,000 pounds were prunes.

These added, give 52,482,000 pounds as the total output for 1896.

I do not believe there were any more held in store houses January 1, 1897, than there were January 1, 1896, and I therefore conclude that our prunes crop for export in 1896 reached about 53,000,000 pounds, including shipments by sea, or 2,650 carloads.

Another noticeable feature worthy of attention is that we exported or sent out of the State in 1893 nearly 7,000 carloads of vegetables, while in 1896 the exports had fallen to 1,617 carloads.

The shipments have fallen off rapidly since 1893.

I am unable to account for this decline in an industry that gave such promise of benefit to the State unless it be in part that our products are now driven out of consumption by increased importation, the result of inadequate protection, and in part from a general falling off in consumption in the line of economy of living. I commend the subject to the Board as worthy of investigation in order to discover the cause and find the remedy.

The wine and brandy industry holds its place in importance with great tenacity, and it is believed is improving from year to year.

I find no serious cause for discouragement in the fruit industry but much to encourage.

It has suffered in common with all other occupations since the hard times fell upon our country, but with a revival of trade and business no industry will feel the impulse of improvement more quickly or more certainly than this.

We have boxed the compass of all difficulties as to the art of planting trees and growing fruit. There are very few, if any, pitfalls for the intelligent orchardist in that direction.

The question of possible over-production continues to haunt timid minds, and there is much perplexity as to the best method to market our fruit.

Both these topics were discussed by request in papers submitted to the Annual Fruit Growers Convention in December last—the first by your President, and the second by your Secretary and Manager. I suggest to the Board the publication of these two papers as an appendix to this report.

Respectfully submitted,

N. P Chipman.

Chairman of the Committee on Industrial Resources.

REMARKS

—OF—

GENERAL N. P. CHIPMAN

—BEFORE THE—

FRUIT GROWERS' CONVENTION

—AT—

SACRAMENTO, DECEMBER 1, 1896.

Mr. President: I have been asked to open the discussion upon the question: "Shall fruit tree planting be encouraged or discouraged? If encouraged, what kinds, varieties, etc., should be planted?"

To put the matter in another form, the inquiry is: Have we reached the limit of profitable fruit growing in California?

This is a perennial proposition that will not down. It is worse than Banquo's Ghost, for it takes new shapes every year. Low prices and hard times and falling off in consumption have again brought it to the front.

Nevertheless the question is of great importance and deeply concerns the welfare of our State. If as fruit-growers we declare that no more fruit trees can be profitably planted we shall strike the severest blow that can be given to our future increase of population; we shall practically surrender the advantages God has bestowed upon this blessed land in its matchless climate; we shall discourage the subdivision of large tracts of land which have hitherto been conceded to be a curse to the State; we shall dedicate our soil to the production of the cereals, the surplus of which must seek foreign markets in competition with all the world and by the longest haul on the globe; and we shall reinaugurate the era of migratory and tramp labor and the dreary waste of limitless, unpeopled wheat fields, sheep walks and cattle ranges.

Before contributing to such a calamity I would seek most earnestly the truth, and I would reach no unfavorable conclusion except upon the most convincing evidence.

But dire as might be the results that would flow from an embargo upon our further extension of fruit growing, as honest men we should not hesitate to speak the truth, even if it be true that disaster must come from an increase of our orchards.

Mr. President: I will state my conclusion at the outset of the argument. I stand here to-day to espouse the cause of further fruit tree planting and to declare that we have not reached, nor are we likely soon to reach, the limit of profitable fruit growing in California.

Four years ago I unearthed a prophecy of Horace Greely uttered in 1859 while he was sojourning in the beautiful Santa Clara Valley. He prophesied that fruit growing was destined to be the ultimate glory of California. I stand here to show the truth of this forecast of the philosopher, sage and prophet.

Let us for a moment see what we have been doing for six years—189) to 1895, inclusive.

For these years I have gathered annually from official and original sources the shipments of fruit from this State, and have embodied them in Annual Reports to the State Board of Trade.

I also gathered the facts as to wine, brandy and vegetables, but let these pass as not germain to the question.

The following comparative table for these years will show the fruit shipments:

General Summary and Comparative Table of Shipments by Rail and by Sea of Fruits, Wine and Brandy, and Vegetables for Six Consecutive Years.

In Tons of 2000 Pounds.

Kinds.	1890.	1891.	1892.	1893.	1894.	1895.
Green deciduous fruits	34,042.	48,344.5	55,844.3	79,952.5	89,787.4	66,254.8
Citrus fruits	34,209.6	46,931.4	34,931.4	80,657.	58,964.2	115,825.5
Dried fruits	32,297.5	32,545.1	29,867.9	41,238.4	51,235.4	61,326.4
Raisins.	20,560.1	22,477.4	26,556.6	37,394.	46,913.2	46,385.3
Nuts	787.1	1,311.7	2,007.6	1,792.5	3,964.5	3,234.7
Canned fruits	40,060.9	24,783.3	38,777.9	27,840.7	52,662.6	31,295.9
Total carloads fruit by rail	16,195.7	17,738.9	18,741.2	26,897.5	30,349.7	32,432.2
Total carloads fruit by sea	....	954.	1,754.5	431.7	924.9	1,114.8
Total carloads fruit by rail and sea	....	18,692.9	20,495.7	27,329.2	31,274.5	33,547.
Total carloads vegetables by rail	....	....	....	6,978.4	4,276.6	3,613.6
Total carloads vegetables by sea	....	....	....	....	410.	40.
Total carloads wine and brandy by rail and sea	....	4,765.1	4,832.5	6,620.9	7,663.5	8,056.8
Total carloads fruit, vegetables, wine and brandy	....	....	....	40,928.5	43,624.7	45,257.4

The table shows that in six years we just about doubled the shipments out of the State (which for convenience I call exports). In 1890 they amounted to 16,195 carloads of ten tons each. In 1895, they were 33,547 carloads. The greatest per cent of increase has been in the citrus fruits, except nuts. In all others the increase has been about 100 per cent. Nuts have about quadrupled, while citrus fruits have more than trebled. Canned fruits were about 700 carloads less in 1895 than in 1890.

Taking the population of the country for these years as given in the Statistical Abstract issued by the Treasury Department, I find that the per capita consumption per annum of our exported fruits in pounds has been:

1890.	1891.	1892.	1893.	1894.	1895.
5.16	5.84	6.03	8.2	9.1	9.6

Some of our exported fruits went to foreign countries, and the population of California is included in the population of the whole country. But these elements would not much change the figures.

Our population has increased 7 millions in six years, or between 11 and 12 per cent, and the per capita consumption of our fruits has increased 100 per cent. But what does this prove?

Simply that our people ate twice as much per capita of our fruit in 1895 as they did in 1890. We are still to inquire whether they will not increase this consumption. Why did they eat twice as much in 1895 as in [illegible] They consumed all we sent them in both years, and they paid [illegible] some of our dried deciduous fruits in 1890 four times as much per pound as they did in 1895. In 1890 we had good times in this country; if we could have doubled our shipments that year we would have found a market at good prices for it all. Hard times began in 1893, and prices began to go down; hard times continued, and low prices continued. We had more difficulty in selling at very low prices than we ever had in good times at high prices, but still the people ate twice as much of our fruit. But what do nine or ten pounds per capita per annum mean? It means less than a pound per month. This is too insignificant to speak of as eating fruit—it is simply tasting it. When you consider that this pound is made up of canned and dried fruit, raisins, figs, nuts, green deciduous fruit and lemons and oranges, it don't amount to tasting.

No political economist or statistician would make his generalizations or work out his conclusions from conditions wholly abnormal. If he found three or four millions of idle people, who were bread winners for ten or twelve millions more, in a total population of 69 million, and without means to buy the necessaries of life, and he found half as many more on half pay, and he also found a condition of universal depression everywhere among the greater part of all the people, he would at once find a solution of the question as to low prices and reduced consumption. He would at once say that millions of these people cannot buy fruit at all while other millions must buy at very low prices, or not at all. And if he found that in the face of all this they had doubled their consumption of an article not necessary to human existence he would conclude, I think, that if conditions changed and became again favorable they would not only still further increase their per capita consumption, but would gladly pay better prices.

We consumed in this country in 1895, 14.95 gallons of malt liquor per capita.

I have such faith in the claim that fruit eating is making as a matter of hygiene, as well as pleasure, to lead me to believe that we may hope to sell one pound of fruit where our brewers can sell one gallon of beer. If we should distribute our fruit with as much enterprise as beer is diffused, we could double consumption in a year.

The point was made not long ago and sustained by the Report of your Committee on the Distribution of our Fruits (Mr. Alfred Holman and Mr. B. N. Rowley) that our sales are made to a comparatively small number of our people. They showed a list of twenty-nine cities of 50,000 inhabitants each to which no California fresh fruit was then shipped direct. Can you find a town in the United States of 100 souls where the enterprising beer-vender has not penetrated ?

The Committee said further "that the Districts in which our fruits are offered to consumers are almost insignificant, where compared with the wider districts where fruit is wanted but to which it never goes."

We have widened our markets some since this was written, but not greatly.

I am satisfied that when the people of the United States are again set to work they will buy our fruit, and will buy all we can grow and pay us fair prices for it, provided we prepare it well and send it somewhere in the region of their homes, and that we do not allow it to be manipulated by half a dozen middlemen, each of whom must have a profit.

The 9.6 pounds per capita must have been consumed by less than one-third of our whole population. Extend the area of distribution, and you at once find new markets and increase the per capita consumption.

I once called attention to Census Bulletin No. 38 for 1890 as illustrating the rapid development of table uses of fruit. It will bear repetition.

The first table grapes grown in the United States and shipped to New York City were 50 pounds in 1845. They were sent from the Lake Keuka District by the New York and Erie Canal. The grower was encouraged to send 200 pounds the next year, but broke the market. It was estimated that in 1890 there went from the same District to the leading cities of the East 20,000 tons for the table. The Hudson River District was estimated to have sent 15,000 tons and the Chatauqua District 15,000 tons, making 50,000 tons, or 5,000 carloads of table grapes in that year.

Let me give you some more facts about fruit consumption. I dare say some of you will be surprised to know that France is a great apple-producing country. Generally we regard France as devoted to grape culture and prune and olive growiug and diversified farming.

In 1893 she produced ten times more pounds of apples than California produced of all kinds of fruits, including wine, brandy and vegetables. The value of this apple crop was over twenty-three and million one-half dollars, and France imported eleven million pounds of apples that same year.

France must have consumed over 200 pounds of apples per capita that year alone, and here we are to-day worrying about selling ten pounds per capita made up of all kinds of fruit, dried and fresh. My authority for this apple story you will find in the Report of the Bureau of Statistics of the U. S. Treasury Department for 1894.

We grow alarmed when we think of shipping 30 thousand carloads a year of all kinds of fruit.

A copy of the proceedings of the Western New York Horticultural Society for 1886 fell into my hands. Nineteen counties were represented, but only nine gave data from which I could compile the shipments of fruit for 1885. I found, however, that these nine counties had shipped 387,558,820 pounds of apples that year to markets near by. It was not a good year for apples either, but these counties shipped over 19,000 carloads to market.

I called your attention to the fact in 1892 at San Jose that the census of 1890 showed that the value of the peach product of the United States was $76,160,000, and that the people spent $1.25 per capita for peaches alone, and that large as was the industry it was only about one-tenth of the value of the entire fruit industry. It was claimed that the peach orchards in that Census Year yielded about $130 per acre gross.

The Bureau of the Census Office having this line of inquiry in charge estimated the investments in horticultural pursuits at one thousand million dollars.

You will therefore perceive that we are engaged in no petty, insignificant business, and that Americans are a fruit eating people.

I can remember when I was a boy living in the State of Ohio that my father usually laid in for our family use in the winter months from 20 to 30 barrels of apples, not to speak of dried fruit and the great pile of hickory nuts and walnuts that went into the loft for consumption.

I can remember also that we felt the pangs of famine when a short crop cut our allowance down.

Life was not worth living to a boy who couldn't take two apples at least for his lunch at school and one for the school-teacher or his sweetheart.

To talk about limiting the members of the family to a single one-pound Pippin in a month, or two good sized Belleflowers, would have brought on domestic rebellion.

Did you ever stop to compute the fruit eaten by a California family?

Ten pounds per year per capita would not begin to tell the truth.

I put the question to a foothill fruitgrower not a week ago where

I was stopping over night. With the aid of his wife, he answered that they usually laid up two tons of apples and about 200 pounds of prunes and some peaches and other fruit. There were eight in the family and occasionally a hired man or two. Ten persons consumed 5,000 pounds of fruit in six months. He couldn't estimate the amount during the fruit season. This family consumed not less than 100 pounds per capita for the year.

Upon another occasion I took the trouble to make quite a general inquiry as to home consumption, and I found that a California family of five members consumed 75 pounds per capita. We were then consuming about 25 per cent of our output with one-fiftieth of the population of the United States.

But we are not increasing our output as rapidly as many suppose.

Compared with 1894, fresh deciduous fruits shipped by rail fell off 2,353 carloads in 1895.

Citrus fruits gained 5,686 carloads.

Dried fruits gained 1,007 carloads.

Raisins fell off slightly.

Canned fruits fell off over 2,000 carloads.

The following table of gains and losses for the two years will show the exact facts.

FRUIT SHIPMENTS OTHER THAN CITRUS COMPARED.
1895 with 1894.

Kinds.	Loss.	Gain.
Green Deciduous	2,353.2	
Dried Fruits		1,007.1
Raisins	52.7	
Nuts	72.9	
Canned Fruit	2,136.6	
Net Loss		3,608.3
Total	4,615.4	4,615.4

It will thus be seen that while citrus fruits in 1895 gained 5,686 cars over 1894, all other fruits combined fell off 3,608 carloads.*

I am aware that this shifting of gains is partly due to frosts affecting the citrus output in 1894 and the deciduous fruit output in 1895. But the fact remains that we are not increasing our output as fast as many suppose.

There is no doubt but that large fruit crops in the East and West have a great influence on our market. They effect both consumption and prices. If the same conditions of soil and climate existed east of the Rocky Mountains that are found here, I would say at once plant no more fruit trees in California. If Johanesburgh wine could be made all over Europe it would be as cheap as *vin ordinaire.*

If prunes and figs and raisins and apricots and cherries and peaches and almonds and English walnuts and olives could be grown from St. Paul to New Orleans, and from Maine to Colorado, we would never have planted except for home consumption. But these fruits cannot be grown in the regions indicated except the peach (in limited areas) and some pears and a few poor varieties of cherries, and oranges in Florida and Louisiana. They grow apples at times in large quantities, but not every year nor everywhere.

Now, I want to remind you that people who eat fruit are not content with one kind any more than they are content with any other one kind of food. The human appetite craves variety. We alone can satisfy that desire from our orchards.

The strong advantage we have over all competitors is in the great variety and excellence of our fruit products and the certainty of annual crops, and that most of our fruits cannot be grown elsewhere in the United States.

California fruits at the East were first a curiosity; next they were a luxury, and now they are fast becoming a necessity.

Mr. President: Let us stop worrying about the false quantity in this argument about over-production.

The real and vital question is a commercial one. If we are to sit down and do nothing to extend our market we had better stop planting.

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*Since this was written I have copied the shipment for 1896 (report prefixed). The result confirmed the statement that our deciduous fruits are not increasing rapidly.

It took some energy and some intelligence to show the East that we could supply fruit to that region. Some of the pioneers ni our noble occupation have gone down in the struggle. To them we owe much. One of these, whose name is the synonym of honesty and fair dealing, and whose unselfish and intelligent efforts to promote the cause of horticulture in California have earned for him the gratitude of fruit growers throughout the State, I may call to mind without the danger of being invidious.

The name of A. T. Hatch will be cherished so long as the Fruit Industry of our beloved State shall survive, and that means a period measured by the centuries to come.

The false quantity in the question is in assuming that we may possibly over-plant, whereas failure lies alone in our failure to push our wares.

We need the highest intelligence in studying the most attractive forms for our merchandise; in producing a high quality and in placing it before consumers.

There is no room for rivalry, for the interest of all lies in the success of all.

Poor fruit or badly prepared good fruit pulls down the price of good fruit well prepared.

This may seem to you commercially paradoxical, but I appeal to your experience as my witness. There is not one of you who would withhold information that would contribute to your neighbor's success. There is not one of you who would not if he could prevent any inferior fruit leaving the State.

The truth is, we must stand or fall together, and one of the great objects of our Conventions is to enable us all to improve our menthods of growing and marketing our fruit.

Co-operationn and organization have done much for the orange and the raisin and the wine market. It has done much in the Santa Clara Valley for the prune market. The time is approaching when all the growers of the State will take shelter under one or more honest exchanges that shall at least control the marketing of the bulk of our dried and prepared products, and may possibly in time embrace the green fruit shipments and the output of our canneries.

And now, Mr. President, I think I have taken all the time I should in fairly opening the argument. I leave much ground uncovered and many points unstated. It would be unfair to exhaust the subject where so many more experienced growers are ready to defend the Fruit Industry and its still further extension.

As to the kinds of trees to plant, what shall I say? What can anyone safely say?

If I should recommend prunes, some pessimist from the Santa Clara Valley will arise and protest; and yet you can't go down there and buy good prune orchards for less than $500 an acre. Besides, I find that we imported over 14 million pounds in 1895. It is one of the curious freaks of commerce, that while we were exporting prunes to foreign countries in 1895 we were importing largely.

If I recommend oranges and lemons, I will be pointed to the enormous plantings in the South and the rapid increase in her output: and yet I was told down there in October last that the industry is in every way promising. I turn to the tables of imports, and I find that more oranges and lemons were imported in 1896 than in 1890.

If I recommend raisins, I am pointed to the hard lines of the Fresno growers; but I find that we imported nearly 16 million pounds in 1895, and that the raisin-grower finds the cause of low prices not alone in too rapid increase of output.

If I should recommend olives, some one would quote the late Senator Stanford, who said we could never undersell cotton-seed oil, and therefore he would not plant olives. And yet our ripe pickled olives are in such demand at home that we con't fill orders from without the State, and our shipments of olive oil have been so insignificant that I can't find any account of them in Railroad Company Reports. Furthermore, we imported 775,000 gallons of so-called olive oil in 1895.

If I recommend the almond, I am confronted with the fact that many growers are grafting the trees to prunes, and are at once giving the almond a black eye and impinging upon the prerogative of the Santa Clara Valley to produce all the prunes required, and this too in the face of an importation of nearly eight million pounds of almonds in 1895.

If I recommend figs, some one will say we can't grow the true fig of commerce because we don't know how to impregnate it (a humiliating confession for a Californian), and so we go on importing 10 or 15 million pounds a year.

And so I might proceed to the end of the catalogue of our fruits. The simple truth as I find it is this.

The grower must study the conditions of soil, climate and market. If he is far distant from lines of transportation he can't raise fruit for shipment in the green state. If he is near these lines he may plant those fruits for which he finds soil, his means of irrigation (if they exist), and the immediate climate of his orchard best adopted. He should plant with intelligent reference to the actual conditions surrounding his home. No one can advise by any general law to be laid down what the varieties should be, and I must decline to recommend what no one ought to try to do in the absence of facts essential to giving safe advice.

Generally speaking, it may be said that enough is now locally known in the fruit regions of the State to guide any intending planter if he will exercise common sence and be willing to profit by the experience of others.

Thanking the Convention for its patient attention, I submit the question for its further discussion.

MARKETING FRUITS

—BY—

J. A. FILCHER,

A Paper read before the State Fruit Growers' Convention at Sacramento December 1, 1896.

I am requested to say a few words on the subject of the distribution of fruits, the opening of new markets, the importance of travelling agents, and the feasibility of establishing stores in all large cities, etc.

Before entering directly upon the consideration of these questions, let us first glance at the fruit industry of this State, consider its magnitude, and the conditions which render it necessary that those interested in the success of fruit growing in California should not relax their efforts until the available markets are thoroughly exploited and the trade conditions so adjusted as to insure to the producer at least a fair share of the price paid by the consumer for his product.

Though comparatively isolated from the great populous centers of the world California is a wonderfully productive State. We have here a wealth of soil and climate not surpassed and hardly equalled on earth. What is peculiar about our climate is the fact that latitude is not an essential factor, but that owing to the Japan or Equatorial ocean current, and the configuration of the country, the minimum of about twenty-five degrees above zero extends practically from the head of the Sacramento Valley near Redding, on the North, to Riverside in Southern California on the South, a distance of nearly six hundred miles. Within these lines of latitude lie the great Sacramento and San Joaquin Valleys, the vast and fertile foot-hill area bordering the same, many rich valleys of the coast range; and the largest and most fruitful portion of Southern California. Within this vast territory of comparatively equal temperature, the soil, seasons and atmosphere are such as to adapt it to the successful production of all the staple varieties of deciduous and citrus fruits. At almost any point in this region from Redding to Riverside, at a moderate altitude, can be found growing such fruits as prunes, peaches, figs, raisins, almonds, walnuts, nectarines, pears, apples, olives, plums, apricots, cherries, persimmons, pomegranates, oranges, lemons, all varieties of berries and all character of cereals. It is possible to raise all these products successfully on one farm in almost any of the valley or foot-hill regions of the State. This cannot be truthfully said of any other material part of the earth.

Another point of vantage which California possesses, owing to its peculiar soil and climatic conditions, and which I may be permitted to mention in this connection, is its adaptability to produce the true wine grape. No less an authority than Professor G. Rossati, Director of the Venotechnic Station of New York, in a late lecture on the subject at Vineland, New Jersey, dwelt on the conditions that necessarily impaired the quality of wine made in the Eastern States, but said: "Note, however, that I am speaking of viticulture in the Eastern section, because on the Pacific Coast, that is to say in California, where the climate is more temperate, the European vine grows and prospers as in Europe, and you see it in the different quality of California wines. In California viticulture has an essentially different character from that of the Eastern States, because there the vine cultivated is the *vitis vinifera*, the true wine grape, while in the East the American grape only can be grown."

Another industry just beginning to attract attention in California is that of tobacco growing. Experiments of skillful growers prove that we can produce a better substitute for Havana tobacco than anywhere in the United States, and it is estimated that we have in California one million acres of land suitable for the growth of this high grade product. This is three hundred thousand acres more than is now utilized in the entire United States for the production of its annual output of $35,000,000 worth of this important staple.

These briefly are the conditions: Now what are the results? Our people have become to know, and to some extent appreciate, the rare gifts which Nature has bestowed up the part of God's footstool embraced in what is known as California, and to a considerable degree have applied their efforts and means in the direction of utilizing Nature's bounties. In demonstrating the productive capacity of the State and its adaptability for the successful cultivation of all the staple fruits, we have made satisfactory progress.

As indicating the wealth of California, this one bright star in the constellation, this one stalwart member in the sisterhood of American States, this queen of the Pacific, this sunset home, this land of gold, this region of high mountains, high waterfalls, big valleys, big trees and big men, it is only necessary to point to the fact that we have within our borders, besides vast forests of the finest timber on earth, and not counting our quarries, our clay beds and our wealth in mineral springs, some forty million acres of arable land. With only about two per cent of the population of the United States we produce 40 per cent of the gold, all of the quicksilver, 93 per cent of the asphaltum, 9 per cent of the wheat, 22 per cent of the barley, 17 per cent of the hops, 23 per cent of the beans, 60 per cent of the wine, 100 per cent of the raisins, 100 per cent of the olives and olive oil, 80 per cent of the beet sugar, 10 per cent of the wool, and 6 per cent of the honey, and in 1895 we exported in products of the tree, vine and garden, exclusive of wine and brandy, 37,160 carloads of ten tons each. The total exports of wine and brandy for the same year was 8,056 carloads.

But while producing all this wealth we are, as I have said, isolated from the populous centers of the earth; we are remote from the great markets of the world. While Nature has endowed us so richly with the sources of production, she has set us apart from those who may desire our products. She has put between us and our brothers of the East a broad desert, and has divided us from the people of the Orient by a broader ocean.

This is the one mark of displeasure she has shown toward her favorite child; this is the punishment alloted to Joseph. Shall we, like the Joseph of old, school our patience, and relying on works rather than fault finding, seek to overcome by devotion to duty the obstacles that seem for the time being to render our situation discouraging, until, to carry the simile further, our merits shall be recognized by the King who rules over the commercial world, and we shall be clothed in the raiment of wealth that becomes us and our station, and all the other brother States and countries of the world shall face the difficulties of a journey to our bounteous land, and on reaching here empty their gold and silver at our feet and bow before us in supplication for a portion of the rich viands and fruits we shall ever have in store?

In the comparatively short term of California's existence as a State we have seen many barriers to our isolation give away. To realize this, compare the difficulties encountered in traveling to or from this State and the Eastern States in 1846 and now. The steam horse on steel rails carries us over mountains and across deserts as far now in a day as we could accomplish fifty years ago in a month. Where vessels of ancient design occasionally touched our coast in 1846 there now steams from our ports a fleet of the best modern ships, carrying our people and our produce to every harbor on the West coast of America and of the Orient. We are a progressive people, and other improvements calculated to lower the rate, reduce the time and in effect shorten the distance to the market centers of the world will follow.

But it is not the part of prudence to wait for these. The fruit growers, like other business men, must adopt themselves to the conditions that exist, seeking always to make the most of them, and never relaxing in their efforts to improve them.

Heretofore the study of the orchardist has been mainly what to plant, how to plant, how to cultivate, to irrigate, to fumigate, to prune, to pick, to cure and to pack. In these departments the California fruit grower has made gratifying progress. He now plants better varieties and produces better fruit with less failures than any other horticulturist on earth. The superiority of his products is recognized everywhere it goes. And I would say in passing that one very important point in helping to extend his market is to keep up the standard of his brands. Deterioration in the quality of the goods will soon be detected by the consumer and sooner by the pealer, and will be resented in such a way as to not only reflect back on the packer who allows it, but to work harm to the entire California trade. The California fruit is naturally superior, and to maintain its reputation and secure for it a price which will warrant in sending it to all parts of the world, we should allow nothing to go out under a California brand but what is at least the equal, and as far as possible the superior, of the same line of goods from other countries. In most of our dried fruits, and in our canned fruits, we have no competitor in point of quality. The French may have aquired some fancy methods of treating or preparing certain kinds of fruit to a degree of excellence which we have not yet attained, but in the inherent quality of the goods ours are admittedly superior.

Secretary Morton during his recent visit to this State said: "California can produce the luxuries for the world." This is true so far as pertains to luxuries in the fruit line, and we can raise these luxuries at a price that will make of them a staple.

With these conditions in our favor it ought not to be difficult to extend our market. The question is, how shall it be done? What means shall we adopt to accomplish the best results?

This brings me to the question I set out to discuss.

Shall we have traveling agents?

Shall we establish stores (fruit stores I presume) in all the large cities?

I will touch on the last question first. I would not establish stores in all the large cities, nor in any of the cities, if it is intended that the fruit growers are to run them or manage them or in any way be responsible for their conduct. The fruit grower in my opinion can better afford to trust the middle-man, if there is not too many of "him," than to neglect his orchard to attend a business he necessarily knows little about. The idea, however, I presume by those who favor it, is to select some one to take the goods which the grower shall furnish and sell them in the large cities of the country on a salary or commission. This in some instances might work all right, but as a general proposition it involves too much risk for the producer, as his portion of all expenses must neccssarily be paid whether the agent makes a success of disposing of his wares or not.

The time may come with more thorough organization when this plan may be worth a trial, but I don't think it is now. I don't think the conditions are such as to require so radical a departure from the ordinary and usual methods that prevail in other lines of production.

I am informed that soon after the close of the Atlanta Exposition, two gentlemen in that city proposing to take advantage of the demand the work of the Californians at that great fair had created for, and the interest which the California exhibit excited in California products, opened on their own account a depot or store for the sale, "wholesale or retail," of strictly and exclusively California products. Their line of goods included fruits—dried, canned, and fresh—oils, wines, nuts, jams, jellies, canned vegetables, canned salmon, beans, and everything obtainable that was produced in California and that might be sold in the South. The last I heard of the enterprise it was doing a big business. The more stores of this kind we can encourage enterprising and responsible men to open in the big cities the better; and really there is a fascination in the advertising line, "Strictly California Products, Full Variety, Original Packages, Absolutely Pure," which it seems would draw customers in any Eastern or foreign city and insure the success of such a venture. But let tradesmen with some experience, or capital which they are willing to spend for this essential requisite, go into the business.

As to the other proposition: Shall we send out traveling agents? I answer yes; a great big emphatic YES. I have often thought, and occasionally remarked, that if all the fruit grown in California was produced by one enterprising man, or one energetic corporation, he or it would have at least one hundred first-class men scattered through the markets of the world drumming for orders, and there exists not a shadow of a doubt but they would prove very profitable adjuncts to the business. The packers or manufacturers of some one special line of food products, such as Mellins Food, Horlicks Malted Milk, Hintz Pickles, Shredded Wheat, Quaker Oats, Pettijohn's Breakfast Food, etc., find it profitable to keep an army of traveling men in the field, and they never miss an opportunity to exhibit their goods at the great interstate and International Expositions. Several of the aforementioned firms spent each as much on their exhibits at the Atlanta Exposition as was spent by the entire State of California. They have had experience enough to know whether making exhibits and sending out traveling men is profitable, and the fact that they are constantly enlarging their work in this line must be accepted as conclusive evidence that it is.

The producers and packers of California fruit should combine for the purpose of entering the field of trade with drummers and the field of Expositions with exhibits. Conditions are such as to render it imperative that they should do so. The remoteness of our position geographically from the centers of trade require in the first place that we go to those trade centers and force on their attention the things we have to sell. The superior quality of our products in the second place gives assurance that the trade will take them when called to their attention. We are like the man with a big store full of superior goods on a back street. We must send our agents on the populous thoroughfares and hang our sign where the people will see it if we expect to do business. When through such efforts the bargains we have to offer are thoroughly made known; when the world shall go to talking about the superior quality of our goods; when the tide of trade is once turned in our direction, we shall not want for customers, and though our supply be ten times what it is at present the world—remember I say the world—will buy it all.

In connection with all exhibits of California products there should be a stand for demonstrating the best methods for preparing California dried fruits for the table. The difference between our dried apricots, peaches or prunes prepared in an indifferent manner, as they too often are for the family or hotel table, and the way they are prepared, without any additional expense, by our all too few expert fruit cooks, is the difference between hard tack and sponge cake. Demonstrating stands are calculated to impress on thousands of housewives and others interested this difference. They are lead to inquire. A little sheet of recipes costing less than a cent reveals to them the secret. They naturally desire to experiment on their newly acquired knowledged. A careful experiment leads to success, and the result is a new and lasting customer for California dried fruits.

A demonstrating stand was maintained in connection with our exhibit at Atlanta, and thousands of recipes for the best methods of cooking California dried fruits were given to those who constantly crowded around for free samples of the prepared product. As a result all housewives and caterers of Atlanta were set to experimenting, and to talking about us and our fruit, and while not a single grocery store had any California dried fruit in stock when we went there, they all had it when we left. Nine carloads were received in that city in three months to meet the demand which our demonstrating stand created. What was true of Atlanta was also true in a lesser degree of Montgomery, Birmingham, Wilmington, Savannah, and all the cities of the Southeast. Even from as far away as Illinois inquiries were received from grocerymen as to where they could order some California dried fruit to fill a demand created among some of their customers by the little recipe books they had brought home from Atlanta.

Boston has just closed a six weeks Pure Food show and we missed a great opportunity in not having a display of our fruit products and a demonstrating stand at that Exposition.

New Englanders, to a larger extent than any other people of this Union, are consumers rather than producers. And that section of our country contains a very large percentage of people who are able to buy our products. According to the "*New England Grocer*," the official organ of the New England grocerymen, the five million people of Boston and the country tributary thereto consume only one pound of California dried fruit per capita per annum, while their consumption of coffee is nine pounds per capita per annum. A little missionary work and a dried fruit cooking stand at one of their occasional Pure Food Shows would give a stimulous to the consumption of our dried fruits at least equal to the consumption of coffee.

The foreign market is also one that ought to be worked. People across the water are just beginning to know and acknowledge the superior quality of our dried and canned fruits. The first two cars of cured apricots shipped from Vacaville this year went to Europe, and the shipments abroad altogether have been, as nearly as I can ascertain, ten times greater this year than they were last year. This result has come without any special effort on our part. By properly exploiting the foreign market the result would surprise us. Most of the dried fruit consumed abroad is of an inferior quality, and yet the price obtained for it is within what we can ship and sell our better products for at a profit. Mr. H. O. Trowbridge, of Oakland, who from his frequent visits to Germany has become tolerably well acquainted with the market conditions of that country, gives it as his opinion that with proper effort on the part of our growers the people within the German Empire would buy at a profit to the producers at least half the dried fruit put up in California.

Hamburg is the great distributing point for Germany and all

Northwestern Europe. In 1895 its shipping amounted to 6,256,000 tons, while the shipping of Liverpool for the same year was 5,965,959 tons. In ten years Liverpool's shipping has increased about 40 per cent, while Hamburg's shipping has increased about 70 per cent. From these figures it will seem that Hamburg is to-day one of the greatest commercial centers of the world. In May next a big International Horticultural Exposition is to open in that city and continue five months. A State with horticultural interests so important as California cannot afford to be left out of that show. The State Board of Trade is undertaking the work of presenting California's claims at that Exposition, and when that body calls on the fruit men and the fruit counties of this State for assistance, as it will, every one interested in California's success should respond promptly and liberally. A judicious expenditure in this direction will repay us a hundred fold.

At the forth-coming Exposition at Nashville in 1897, at Omaha in 1898, and at Paris in 1900, California ought to be represented, and the State in its sovereign capacity could show appreciation of its great horticultural and other industries in no more effective or substantial manner than by making appropriations for the purpose. The accruing benefits would be felt more or less by all in the State, and all in proportion to their wealth ought to pay for the work.

If a means could be devised by which we could send out small packages as presents to Eastern or foreign friends, or as samples to prospective buyers, at a less cost than at present, there would be many more such packages sent, and the result would be to better acquaint the country with the merits of our products and make a demand for them in localities where they are now but little known. I have thought that if this matter were properly represented to Wells, Fargo & Co., who are materially interested in the progress and prosperity of California, they might see it to their advantage to make some concessions in this direction.

Finally, as a defense against the armies of middle-men, the fruit growers ought to keep up their exchanges where they have them, and in a section where no exchange exists they ought to organize. The practice of the middle-man fixing prices, regardless of supply or demand, puts the grower at their mercy; but it will continue until those who are hurt by it combine to stop it.

I have known instances where the shipper quotes out certain fruit at a certain price long before that fruit is ripe. A rivalry for the trade prompts his neighbor to quote out a litter lower. The first party, learning of his rival's figures, makes still another cut. Thus one reduction succeeds another until the fruit appears, when the hapless and helpless grower is told by the shipper that all he can pay to-day is so much, a figure of course under his last quotation. And thus whether the crop is long or short, whether the quality is good or bad, whether the demand is brisk or dull, the grower is made the victim of the shipper's avarice and is permitted to receive just what the shipper has seen fit to make the price. He is thus debarred from any extra profits that might occasionally result from a short crop, an extra demand or a superior product.

A firm determination to stop this kind of business might result in temporary loss, but the final result would be to release the fruit grower from a bondage that is grinding and blighting.

The price of our produce to-day is fixed as much by those who market it as by the law of supply and demand. There was a time when trade followed natural conditions, but man's shrewdness, coupled with unlimited capital, seems to defy Nature in these modern times, and directs the trade to suit his purpose. Where these forces, calculated to hurt the producer, are combined, they must be met by combination. The Devil must be fought with fire.

It has recently developed that one firm in Chicaga practically controls the walnut market of California. The growers, having learned this fact, propose to get from under the pressure of that firm by a more thorough combination, and an arrangement to market their own product. Their intention, as I learn from Mrs. Strong, of Whittier, one of the principal growers of the State, is to send out their own travelling men to secure orders from the trade, and thus by one deal transfer the nuts from the growers exchange to the stalls of the jobber.

Should this experiment prove successful, and I believe it will, the key note to the situation will be sounded; the way will be pointed out of the wilderness, and the difficulties that now surround the California fruit grower in the matter of marketing his product will give way before wise and well directed combination, and such methods as the cupidity of middle-men may force those combinations to adopt.

ANNUAL REPORT

. . . OF THE . . .

CALIFORNIA STATE BOARD OF TRADE

Upon the Industrial Resources of the State
of California for 1897 . . . .

BY

GEN. N. P. CHIPMAN

CHAIRMAN COMMITTEE OF INDUSTRIAL RESOURCES
OF THE STATE

SUBMITTED MARCH 8, 1898

* * * *

> "Fruit growing is destined to be the ultimate glory of California."
> HORACE GREELEY, 1859.

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EXHIBIT ROOMS
FERRY BUILDING
SAN FRANCISCO

EIGHTH ANNUAL REPORT

OF SHIPMENTS OF FRUIT, WINE AND BRANDY AND VEGETABLES FOR 1897—TOGETHER WITH TABLES SHOWING OTHER PRODUCTIONS.

BY

GEN. N. P. CHIPMAN

CHAIRMAN COMMITTEE ON INDUSTRIAL RESOURCES

March 8, 1898

To the Directors State Board of Trade:

GENTLEMEN:

I herewith present the eight annual report of the shipments from the State of fruit, wine and brandy and vegetables, the products of our orchards, vineyards and gardens for the year 1897. In 1890 I submitted the first authentic report published up to that time, showing the value of our orchards in adding wealth to our people and the importance of the fruit industry in the future development of the State. The figures then shown were a surprise to ourselves, and few persons were willing to believe that our fruit, wine and brandy for that year, sold without the State, exceeded in value the exports of wheat and flour. But such was the fact. When the statement was made that the shipments of fruit amounted to 16,194 carloads it was received at first with incredulity; but the figures could not be attacked for they came directly from the transportation companies. The result was to arouse in the minds of many persons a doubt as to our ability to find a market for a greater output, and the question of over production has been the source of much discussion ever since. I have on many occasions been called upon to combat the fears of planters; and, with the assurances of this Board and intelligent orchardists, in support of the view that the market was practically unlimited for good fruit, properly prepared, our orchards have expanded beyond all previous hopes of the industry. Our shipments out of State for the year 1897 of fruit alone amounted to 36,440 carloads. Adding wines and brandy 6,897 cars; and vegetables 4,734, gives us a total of 48,071 carloads. The tables forming a part of this report should be carefully studied as they present the growth of the industry for eight years and the gains and losses in particular kinds of products. Compared with 1896 the gains and losses have been as follows:

	CARLOADS.	
	Gain.	Loss.
Green Deciduous Fruits	1471.2	
Citrus Fruits		60.9
Dried Fruits	2663.7	
Raisins	463.1	
Nuts	83.6	
Canned Fruits	2791.8	
Vegetables	3116.3	
Wines and Brandies		711.2
Total net gain	9817.6	

The increase in dried fruits over the output of 1896 has done but little more than restore the output of 1895. Indeed when we add the known increase in prunes for 1897 this apparent increase in dried fruits will be almost entirely accounted for. In my report for 1896 I showed that the prune productions amounted to 53,000,000 pounds. The reports made to me by the transportation companies do not segregate the different kinds of dried fruits, except that prunes were partially segregated and from these reports we find that there were shipped from the State during the past year 82,902,680 pounds. Of the dried fruit accounted for from which prunes were not segregated I estimate 600,000 pounds which added to the known shipments above stated make total shipments of prunes 83,902,680 pounds. Assuming that we carried over into the present year the same quantity carried over last year would give the output of prunes for 1897 to be in round numbers 83½ million pounds, which shows an increase over 1896 of 30½ million pounds. The largest importation of prunes was in the year 1887 when we imported into the United States 92,032,620 pounds. From the best information obtainable, we produced in California that year only 2,000,000 pounds, which shows that the consumption ten years ago was about 8,000,000 pounds greater than the present production in California. The population of the United States has increased since 1887, over ten millions. Importations have practically ceased and will not be resumed to any extent under present tariff protection. We have successfully exploited the European market for prunes and find that we can compete with the French and German article on their own ground when those countries do not have excessive crops. Our Secretary, Mr. Filcher, estimates that we shipped about 800 carloads of dried fruit, mostly prunes, last year to Hamburg, as the result largely of our exhibit at the International Exposition in that City. I conclude therefore that the prune situation is not so discouraging as many suppose.

The gain in canned fruits shows a very satisfactory and encouraging increase. Our largest previous shipment was in 1894 when we sent out 6,035 carloads. The increase is 1,311 carloads above our best previous year.

We reached the maximum of green deciduous fruit shipments also in 1894, being 8,069 carloads against 7,235 last year. This branch of the industry is still struggling to overcome draw backs, to say the least, very discouraging to shippers. Our growers cling with great tenacity to the belief that there will yet be found a way to profitably ship our fresh fruits to Eastern markets.

Our shipment of vegetables ran down from 6,978 carloads in 1893 to 1,618 in 1896. We brought the figure back to 4,733 in 1897.

Our orange and lemon shipments reached their maximum in 1895 with 11,582 carloads. Last year fell behind that year 1,728 carloads and behind 1896 by 60 carloads. It will be observed that our reports upon citrus fruits cover, as in other products, the calendar year, and not the market year, which for oranges begins in December and extends into the following year, the bulk, however, going out after December. For practical purposes and in a period of years these reports fairly mark the growth and extent of the orange and lemon industry. The expansion of orange growing in North California has been watched with much interest. In 1893 we sent out of the State 4 carloads; in 1896 we had reached 81 carload; last year we sent 286 carloads. The first oranges in the market come from the North, and hence at present the larger part are consumed at home. The oranges finding market abroad from the North, go principally from the upper San Joaquin Valley and from Butte County, and some from the vicinity of Newcastle.

The fruit growers of the State have not realized the profitable returns that were anticipated from the business, as appeared certain in 1890, '91 and '92; and, many growers are hesitating whether to devote their lands now planted to other uses, while it is quite evident that the planting of new orchards is much retarded. My own view upon the subject briefly stated is—that a restoration of general prosperity throughout the country will give to us the market we desire at profitable prices. We cannot expect that people will buy fruit in large quantities at high prices so long as wages remain low and a large part of our population are idle. The conditions for trade must exist, or there can be no trade; and, yet we must not forget that in 1897 we sold 36,440 carloads, which was 3,000 carloads more than we ever before shipped from the State in any year; and, there was perhaps less dried fruit on hand in January of this year than ever before at the beginning of the year. We shall get the price we want when our people can afford to pay it. The remedy is not in digging up our orchards, nor in ceasing to plant trees; but it is in the adoption and enforcement of such national policies as will restore normal conditions in trade. There can be no doubt but that the movement into Alaska will create a practically new demand for our dried and canned fruits without diminishing the Eastern trade. The miners of the Yukon and outfitters for Alaska regions must look to California for their supplies. I should think that 100 pounds for a year's supply would not be too great per capita. One hundred thousand men would therefore consume ten million pounds.. We have no means of showing the quantity now finding market in Europe, as the fruit is re-shipped from Eastern points. But we know it is large and increasing. The truth is that the intelligent fruit growers of California have stood the pressure of hard times for the past three or four years better than any other class of our agriculturists, and have, I think, brighter prospects before them to-day.

It has seemed to me that it might subserve a good purpose if there were presented with our fruit statistics of the orchard, vineyard and garden, some tables showing other products of the State. I have therefore tabulated, and there will be found appended to the schedule of fruits, tables giving the exports and various productions, for a series of years, namely:—of the cereals, wool, beet sugar, hops, minerals, dairy products, etc.

The table of minerals is of special value, and is published for the first time, and is the work of Prof. Charles G. Yale of the State Mining Bureau. The table of beet sugar products from 1888 to 1897 inclusive, was furnished by Mr. Claus Spreckles. The report of cereals was obtained from the Produce Exchange and the wool output was furnished by Mr. Charles H. Abbott of this City.

The lumber output was not obtainable, as the receipts at this port include Oregon and Washington lumber. The amount produced in the State, however, is very large.

For the statistics of shipments by rail I am indebted to the courtesy of Mr. William Sproule, General Traffic Manager S. P. Company, and Mr. C. E. Crary, Auditor of the Southern California Railway Company (Santa Fe System).

The purpose of including these general items was in part to show the varied resources of the State and the many occupations open to the settler among us.

It is to be regretted that it is not possible to obtain accurate, or is some cases even approximate, data as to the resources of the State. No one can realize the labor involved in an attempt to obtain reliable information concerning our State and its industries. As the State seems indisposed to establish a Bureau of Statistics or to devolve the duty of gathering reliable information upon any of its numerous Boards or officers. I hope some day this Board may be able to enter upon the discharge of that important duty.

I cannot speak for the absolute accuracy of the tables appended hereto except as to those relating to the orchard, garden and vineyard, but the others are thought to be approximately correct; and, as to the sugar and mineral output are entirely reliable as is that also of the wool I think.

The most promising of our new agricultural industries is sugar beet growing. I recently submitted a report upon that subject to which I can now add nothing. The growth of the industry is attested by the fact that in 1888 we produced 1,010 tons and in 1897 the output was 35,280 tons. Factories are in the course of construction that will double this output for 1898.

The table of minerals shows that our output of gold continues at about twelve and one-half million dollars up to 1895, when it increased to \$15,334,318, and in 1896 to \$17,181,562. For 1897 I shall have the figures in a few days, but they will show no diminution in the gold output. There has been a steady and permanent growth of our mineral output which now reaches over twenty-five million dollars. In fact our receipts from wheat and flour exports and from fruits, wine, brandy and vegetables and from our mines about equal each other. I regard the mining industry of great and increasing value to the State because of its permanency and because practically all the output is retained in the State and adds to its substantial wealth.

I also invite your attention to the fact that our wool output in 1897 was greater than it was in 1887, ten years ago, and was not much below the best year in the decade.

There were only three years since 1887 when the output or hops was greater than in 1897.

It will also appear from the tables that we are holding our place as a wheat producing State and it will also be observed that our dairy interests are in a flourishing condition.

I mention these facts to show that our special cultures such as fruits, wines, sugar beets, etc., have in nowise displaced the general farming industries of the State.

Looking over the whole field of California's marvelous and varied industries and always remembering the unique and exceptional conditions which make many of our products exclusive to her soils, in this country, I feel an unshaken faith in the future prosperity of our commonwealth.

N. P. CHIPMAN,

Chairman of the Committee on Industrial Resources.

Appendix—Annual Report Submitted by Genl. N. P. Chipman to State Board of Trade, March 8, 1898. Shipments of Fruit out of the State by Rail in 1897. Tons of 2000 pounds.

Place of Shipment.	Green Deciduous.	Citrus.	Dried.	Raisins.	Nuts.	Canned.	All Kinds.
NORTHERN CALIFORNIA.							
San Francisco	72.6	22.3	4,783.9	232.1	444.1	15,865.9	21,420.9
Oakland	3,430.9	....	239.4	....	132.8	3,939.8	7,742.9
San Jose	12,598.3	....	29,533.7	2.6	38.3	6,621.0	48,793,9
Stockton	10,836.7	1,500.5	19,182.4	34,758.8	182.6	1,775.7	68,236.7
Sacramento	41,493.1	246.6	7,767.0	848.5	700.8	5,527.8	56,583.8
Marysville	2,655.2	1,097.4	4,154.4	245.9	94.7	4,289.4	12,537.0
Total Tons	71,086.8	2,866.8	65,660.8	36.087.9	1,593.3	38,019.6	215,315.2
Total Carloads	7,108.6	286.6	6,566.0	3,608.8	159.3	3,801.9	21,531.5
SOUTHERN CALIFORNIA.							
Los Angeles	382.3	53,815.2	5,109.4	324.6	3,221.3	23,134.0	85,986.8
Orange County	1.0	5,772.0	293.0	304.0	941.0	29.0	7,340.0
Riverside County	37.0	1,768.0	286.0	90.0	....	1.0	2,182.0
San Bernardino Co	7.0	8,207.0	2,666.0		21.0	360.0	11,951.0
San Diego County	29.0	3,118.0	279.0	1,	....	3.0	4,830.0
Total Tons	456.3	95,680.2	8,633.4	2,709.	4,183.3	23,547.0	112,289.8
Total Carloads	45.6	9,568.0	863.3	270.9	418.3	2,354.7	11,228.9
Carloads from State	7,154.2	9,854.6	7,429.3	3,879.7	577.6	6,156.6	32,760.4
Carloads by Sea	80.7	....	86.5	26.8	3.2	1,189.9	1,387.1
Total Carloads by Sea and Rail	7,234.9	9,854.6	7,515.8	3,906.5	580.8	7,346.5	34,147.5

Shipments Out of the State by Rail in 1897 of Wine, Brandy and Vegetables. Tons of 2000 Pounds.

PLACE OF SHIPMENT.	WINE.	BRANDY.	WINE AND BRANDY NOT SEGREGATED.	VEGETABLES.
NORTHERN CALIFORNIA.				
San Francisco	29,001.6	1,441.0	....	8,720.1
Oakland	685.1	13.9	....	243.0
San Jose	1,634.0	154.3	....	448.5
Stockton	3,155.9	505.4	....	6,407.5
Sacramento	11,705.7	163.0	....	8,289.0
Marysville	1,103.0	368.4	....	125.3
Total tons	47,285.3	2,646.0	....	24,234.0
SOUTHERN CALIFORNIA.				
Los Angeles	1,972.9	77.1	1,652.0	15,855.9
Orange County	....	....	....	2,231.0
Riverside County	....	....	....	13.0
San Bernardino County	....	....	....	14.0
San Diego	....	....	....	....
Total tons	1,972.9	77.1	1,652.0	18,203.9
Total by rail from State	49,258.2	2,723.1	1,652.0	42,437.9
Total carloads by rail	4,925.8	272.3	165.2	4,243.8

Shipments out of State of Fruits and Vegetables by sea in 1897.

Tons of 2,000 pounds.

PLACE OF SHIPMENT	GREEN DECIDUOUS	CITRUS	DRIED	RAISINS	NUTS	CANNED	VEGETABLES
San Francisco...........	807.1	....	865.5	268.3	32.0	11899.	4908.1

Shipments out of the State of Wine and Brandy by Sea in 1897.

Tons of 2,000 pounds.

PLACE OF SHIPMENT	WINE	BRANDY
San Francisco..........	15,304.1	40.5

General Summary and Comparative Tables of Shipments by Rail and by Sea, of Fruits, Wine, Brandy and Vegetables for Eight Consecutive Years.

Tons of 2000 Pounds.

KINDS	1890	1891	1892	1893	1894	1895	1896	1897
Green Deciduous.........	34042.0	50548.9	59374.5	80112.3	90692.2	66254.8	57638.3	72350.2
Citrus Fruits.............	34209.6	46921.4	34857.5	80757.0	58964.0	115825.5	99156.0	98547.0
Dried Fruits	32297.5	32919.0	29762.2	45386.2	51828.2	61386.4	48522.8	75159.7
Raisins..................	20560.1	22779.1	26673.4	37409.9	46954.4	46390.1	34434.6	39065.8
Nuts.....................	787.1	1358.9	2061.9	1796.5	3953.5	3234.7	4972.6	5808.6
Canned Fruits............	40060.9	32395.0	55273.7	31626.3	60352.6	41395.5	45546.9	73464.7
Carloads Fruit............ by rail and by sea.......	16195.7	18692.2	20800.3	27708.8	31274.4	33547.2	29026.7	36439.6
Carloads Vegetables ...... by rail.................	none reported	none reported	none reported	6978.4	4276.6	3613.6	1130.6	4243.8
Carloads Vegetables ...... by sea.................	none reported	none reported	none reported	none reported	410.0	40.0	487.7	490.8
Carloads Wine and Brandy. by rail and sea	none reported	4765.1	4832.5	6620.9	7663.5	8056.8	7609.0	6897.8
Carloads Fruit, Vegetables Wine and Brandy......... by rail and sea	16195.7	23347.3	25632.8	40928.5	43624.7	45257.4	38254.0	48072.0

Table of Gains and Losses, 1896 and 1897 compared.

CARLOADS.	1896.	1897.	GAIN.	LOSS.
Green Deciduous	5,763.8	7,235.0	1,471.2	....
Citrus Fruits......	9,915.6	9,854.7	....	60.9
Dried Fruits.	4,852.2	7,515.9	2,663.7	....
Raisins.......	3,443.4	3,906.5	463.1	....
Nuts.....	497.2	580.8	83.6	....
Canned Fruits.............	4,554.6	7,346.4	2,791.8	....
Vegetables	1,618.3	4,734.6	3,116.3	....
Wines and Brandy..........	7,609.0	6,897.8	....	711.2
Total....................	38,254.1	48,071.7	10,589.7	772.1
Net Gain, Carloads.........	....	....	9,817.6	....

BEET SUGAR PRODUCTS, 1888–1897.

Tons of 2000 Pounds.

Year.	Watsonville.	Alvarado.	Chino.	Alamitos.	Total.
1888	1,452	458	Nil	Nil	1,910
1889	1,585	872	"	"	2,457
1890	2,128	1,403	"	"	3,351
1891	2,183	891	"	"	3,074
1892	5,634	1,253	"	"	6,887
1893	7,645	2,243	"	"	9,888
1894	11,935	2,955	3,725	"	18,615
1895	10,786	2,700	10,341	"	23,827
1896	19,185	4,679	7,951	"	31,815
1897	14,761	5,089	12,020	3,500	35.280
Total.	77,204	22,543	34,037	3.500	137.284

WOOL PRODUCTION OF CALIFORNIA FROM 1854 TO DATE.

Compiled by CHAS. H. ABBOTT, ESQ.

YEAR.	POUNDS.	YEAR.	POUNDS.
1854	175,000	1876	56,550,973
1855	300,000	1877	53,110,742
1556	600,000	1878	40,862,091
1857	1,100,000	1879	46,903,360
1858	1,428,000	1880	46,074,154
1859	2,378,000	1881	45,076,639
1860	3,055,327	1882	40,529,119
1861	3,721,998	1883	40,848,690
1862	5,990,300	1884	37,415,330
1863	6,268,480	1885	36,561,390
1864	7,923,670	1886	38,509,160
1865	8,949,931	1887	31,564,231
1866	8,532,047	1888	32,569,972
1867	10,288,600	1889	34,008,370
1868	14,232,687	1890	34,854,640
1869	15,413,970	1891	33,183,475
1870	20,072,660	1892	35,802,930
1871	22,187,188	1893	33,169,375
1872	24,255,468	1894	36,968,400
1973	32,155,169	1895	35,856,690
1874	39,356,781	1896	27,195,550
1875	43,532,223	1897	34,882,325

THE MINERAL PRODUCTIO

Compiled by C

Under direction of A

	1887.		1888.		1889.		1890.		1891.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Antimony, tons	75	$ 15,500	100	$ 20,000	none	none	none	none	none	none
Asbestos, tons	30	1,800	30	1,800	30	$ 1,800	71	$ 4,260	$ 66	$ 3,960
Asphalt, tons	4,000	16,000	3,100	39,500	3,000	30,000	3,000	30,000	4,000	40,000
Bituminous rock, tons	36,000	160,000	50,000	257,000	40,000	170,000	40,000	160,000	39.962	154,164
Borax, pounds	2,029,350	116,689	2,809,088	196,636	1,939,650	145,473	6,402,034	480,152	8,533,337	640,000
Cement, barrels									5,000	15,000
Chrome, tons	3,000	40,000	15,000	20,000	2,000	30,000	3,590	53,985	1,372	20,580
Clay (brick) M										
Clay (pottery) tons	75,000	37,500	75,000	37,500	75,000	37,500	100,000	50,000	100,000	50,000
Coal, tons	50,000	150,000	95,000	380,000	121,280	288,232	110,711	283,019	93,301	204,902
Copper, pounds	1,600,000	192,000	1,570,021	235,303	151,505	18,180	23,347	3,502	3,397,455	424,675
Gold		13,588,614		12,750,000		11,212,913		12,309,793		12,728,869
Granite		150,000		57,000		1,329.018		1,200,000		1,300,000
Gypsum, tons	2,700	27,000	2,500	25,000	3,000	30,000	3,000	30,000	2,000	20,000
Infusorial Earth, tons					39	1,335	none.	none	none	none
Iron ore, tons										
Lead, tons	580	52,200	450	38,250	470	35,720	400	36,000	570	49,020
Limestone and lime		368,750		381,750		416,780		350,000		300,000
Macadam, cu. yds.										
Magnesite, tons	600	9,000	600	9,000	600	9,000	600	9,000	1,500	15,000
Manganese, tons	1,000	9,000	1,500	13,500	53	901	386	3,176	705	3,830
Marble		5,000		5,000		87,030		80,0000		100,000
Mineral paint, tons							40	480	22	880
Mineral water, gals.	618,162	141,368	1,112,202	252,990	808,625	252,241	8,722	89,786	334,553	135,959
Natural gas				10,000		12,680		33,000		30 000
Onyx and Travertine		900		900		900		1,500		2,400
Petroleum, barrels of 42 gals.	678,572	1,357,144	690,333	1,380,666	303,220	368,048	307,360	384,200	323,600	401,264
Platinum, oz.	100	400	500	2,000	500	2,000	600	2,500	100	500
Quicksilver—flasks of 76½ lbs.	33,760	1,425,000	33,250	1,413,125	26,464	1,190,500	22,926	1,203,615	22,904	1,036,386
Rubble, tons										
Salt, tons	28,000	112,000	30,800	92,400	21,000	63,000	8,729	57,085	20,094	90,303
Sandstone		175,000		150,000		175,598		100,000		100,009
Serpentine, cub. feet										
Silver		1,632,003		1,700,000		754,793		1,060,613		953,157
Slate, squares					4,500	18,089	4,000	24,000	4,000	24,000
Soapstone, tons										
Soda, tons										
Tin, pounds									125,289	27,564
Total		19,785,868		19,469,320		16,681,731		18,039,666		18,872,413

CALIFORNIA FOR TEN YEARS.

YALE, Statistician.

OPER, State Mineralogist.

9	1893.		1894.		1895.		1896.		TOTALS FOR TEN YEARS.		
alue.	Quantity.	Value.	Quantity.	Value.	Quant ty.	Value.	Quantity.	Value.	Quantity.	Value.	
none	50	$ 2,250	150	$ 6.000	3 3	$ 1,485	17	$ 2,320	425	$ 47,555	Antimony.
1,830	50	2,500	50	2,250	25	1,000	none	none	382	21,200	Asbestos.
75,500	950	161,250	11,698	233,800	25,525	170,500	20,914	362,590	91,937	1,159,140	Asphalt.
72,000	32,000	192,036	31,214	115,193	38,921	121,586	49,456	122,500	381,553	1,524,479	Bituminous rock.
838,787	7,910,563	593,292	11,540,099	807,807	11,918,000	595,900	13,508,000	675,400	76,640,646	5,090,136	Borax.
15,000	none	none	8,000	21,600	16,383	32,556	9.500	28,250	43,383	112,406	Cement.
22,500	3,319	49,785	3,680	39 980	1,740	16,795	786	7,775	22,496	301,400	Chrome.
....	103,900	801,750	81,675	457,125	131,772	672,360	24,000	524,740	341,347	2,455,975	Clay (brick).
50,000	24,855	67,284	28,475	35,073	37,660	39,685	41,907	62,900	657,898	467,442	Clay (pottery).
209,711	72,603	167,555	59,887	139,862	79,858	193,790	70,649	161,335	838,467	2,178,406	Coal.
342,808	239,682	21,571	738,594	72,486	225,650	21,901	1,992,844	199,519	12,920,042	1,531,945	Copper.
.571,900	....	12,422 811	....	13,923,981	....	15,334,318	....	17,181,562	....	134,024,062	Gold.
,000,000	....	628,272	....	295,797	....	297,667	....	278,588	....	6,536,342	Granite.
20,000	1,620	14,280	2,446	24,584	5,158	51,014	1,310	12,580	25,734	254.458	Gypsum
none	50	2,000	51	2,040	none	none	none	none	140	5,375	Infusorial earth.
....	250	2,000	200	1,500	none	none	none	none	450	3,500	Iron ore.
54,400	333	24,975	475	28,500	796	49,364	646	38,805	5,400	407,234	Lead.
300,000	....	301,276	....	337,975	....	457,784	....	332,617	....	3,546,932	Limestone and lime.
....	271.500	256.875	441,967	369,438	840,650	700,987	646,646	510,245	2,200.763	1,837,545	Macadam.
15,000	1,093	10,930	1,440	10,240	2,200	17,000	1,500	11,000	11,633	115,170	Magnesite.
3,000	270	4,050	523	5,512	880	8,200	518	3,415	5,935	54,584	Manganese.
115,000	....	40,000	....	98,326	....	56,566	....	32,415	....	619,337	Marble.
750	590	26,795	610	14,140	750	8,425	395	5,540	2,432	57,010	Mineral paint.
162,019	383,179	190,667	402,275	184,481	701,397	291,500	808,843	337,434	5,759,833	2,641,445	Mineral water.
55,000	....	68,500	....	79,072	....	112,000	....	114,457	....	511,709	Natural gas.
1,800	....	27,000	....	20,000	....	12,000	....	24,000	....	91,400	Onyx and Travertine
561,333	470,179	608,092	783,078	1,034,521	1,245 339	1,000,235	1,257,780	1,180.793	6,444,510	8,306,296	Petroleum.
440	75	517	100	600	150	900	162	944	2,367	10,801	Platinum.
1,139,600	30,164	1,108,527	30,416	934,000	36.104	1,337,131	30,765	1,075,449	294,746	11,863,3[illegible]	Quicksilver.
....	99,600	199,200	219,933	295,400	414,038	394,952	313,973	329,639	1,047,544	1,219,191	Rubble.
104,788	50,500	213,000	49,131	140,087	53,031	150,576	64,743	153,244	349,598	1,176,433	Salt.
50,000	....	26,314	....	113,592	....	35,373	....	28,378	....	934,255	Sandstone.
....	....	....	....	....	4,000	4,000	1,500	6,000	5,500	10,000	Serpentine.
463,602	....	537,157	....	297,332	....	599,789	....	422,464	....	8,420,909	Silver.
21,000	3,000	21,000	1,800	11,700	1,350	9,450	500	2,500	22,650	131,730	Slate.
....	400	17,750	none	none	25	375	none	none	425	18,125	Soapstone.
....	....	....	1,530	20,000	1,900	47,500	3,000	65,000	6,430	132,500	Soda.
32,400	....	....	....	....	....	....	....	....	287,289	59,964	Tin.
8,300,168		18,811,261		20,203,294		22,844,664		24,291,398		107,299,783	Total.

HOP PRODUCTION FOR TEN YEARS—1888—1897.

Compiled by Lilienthal & Co., of San Francisco.

YEAR	BALES	POUNDS	YEAR	BALES	POUNDS
1888	34,605	6,400,925	1893	51,400	9,509,000
1889	35,230	6,517,550	1894	67,500	12,287,500
1890	28.130	5,204,050	1895	52,000	9,620,000
1891	36,151	6,687,935	1896	35,000	6,475,000
1892	39,800	7,363,000	1897	45.000	8,325.000

Indications of low prices, cause of decrease in crop. Some Yards being abandoned permanently, others temporarily.

CLEARANCES BY SEA FROM SAN FRANCISCO.

Compiled from Reports of Produce Exchange.

YEAR.	FLOUR BBLS.	WHEAT CENTALS.	OATS CENTALS.	CORN CENTALS.	BARLEY CENTALS.	RYE CENTALS.
1887	994,959	12,311,161	....	....	726,969	....
1888	848,199	8,888,844	27,538	74,772	550,253	....
1889	879,184	13,418,254	30,769	19,770	952,408	....
1890	1,174,974	13,728,442	52,834	53,967	813,140	....
1891	1,181,872	13,939,629	16,624	130,544	336,269	....
1892	1,055,757	12,784,779	18,160	77,928	1,129,416	93,649
1893	1,084,561	10,551,674	20,035	69,884	1,894,330	66,548
1894	776,874	8,958,193	21,520	188,960	2,462,690	22
1895	922,384	9,598,623	16,970	76,966	699,958	12
1896	964,032	10,350,561	25,192	34,409	2,265,665	55,689
1897	1,119,103	10,092.012	32,338	63,571	3,660,177	166,501

CLEARANCES BY RAIL FROM SAN FRANCISCO.

YEAR.	FLOUR BBLS.	WHEAT CENTALS.	BARLEY CENTALS.	YEAR.	FLOUR BBLS.	WHEAT CENTALS.	BARLEY CENTALS.
1887	4,959	18,759	232,599	1893	....	....	48,800
1888	7,000	34,886	494,469	1894	....	....	254,332
1889	....	....	357,806	1895	....	....	780
1890	....	....	134,508	1896	....	....	45,077
1891	....	....	....	1897	....	....	....
1892	....	....	....				

CALIFORNIA WHEAT CROP, INCLUDING FLOUR.

CROP YEAR.	WHEAT TONS.	CROP YEAR.	WHEAT, TONS.
1886–87	1,069,719	1892–93	1,022,298
1887–88	865,794	1893–94	995,232
1888–89	932,154	1894–95	716,792
1889–90	1,258,747	1895–96	786,522
1890–91	944,484	1896–97	872,602
1891–92	1,054,772		

DAIRY STATISTICS.—Compiled by William Vanderbuilt, Sec'y State. Dairy Bureau. (Pounds.)

YEAR.	BUTTER, Separator Process.	BUTTER, Old Dairy Method.	CHEESE.
1896	10,097,323	21,508,117	6,383,130
1897	9,967,490		5,384,974

Returns received to March 8th, 1898, for dairying year ending October 1st, 1897, Estimated there will be 10,000,000 pounds of butter made by separator process. Cheese estimated at 6,000,000. Humboldt County has made the most butter and Los Angeles County the most cheese.

FARM STATISTICS.

	In California.	In United States.
Increase in the number of farms	47 per cent.	14 per cent.
Increase in farm acreage	29 " "	15 " "
Increase in value of lands, fences, and buildings on farms	166 " "	32 " "
Increase in value of property	88 " "	40 " "
Increase in value per capita	35 " "	19 " "
Increase in value of farm implements	74 " "	25 " "
Increase in value of live stock	70 " "	46 " "
Rank in total wealth		6th.
Rank in population		22nd.
Rank in value of live stock		14th.
Rank in number of sheep on ranches		1st.
Rank in number of horses on farms		9th.
Rank in value of farm products		10th.
Rank in quantity of wheat grown		3rd (1893)
Increase in wheat produced	41 per cent. (decade)	1 per cent.
Of the entire wheat crop in the United States	9 " " (1890)	
Of the total value of wheat exports	25 " "	(remaining states 75 per cent.)
Of the total barley crop of the United States	22 " " (1890)	
Rank in quantity of hay of the United States		9th (1894)
Rank in quantity of hops of the United States		3rd (1890)
Rank in quantity of wine of the United State		1st, or 6 per cent. of country's output
Rank in dairy products		5th.
Rank in wool		1st and 2nd, never below 2nd.
Farm products, increase	46 " " (decade)	11 per cent U. S.
Increase in manufactures	84 " "	74 " " "

FORTY-EIGHT YEAR'S RAINFALL.

(Read before the regular Monthly Meeting of the California State Board of Trade, Jan 11th, 1898.)

The Hon. E. W. Maslin, of San Francisco has compiled a table shôwing the rainfall for forty-eight consecutive seasons. In forty-eight seasons there has fallen at Sacramento and San Francisco a total of 960.81 inches of rain, an average for each season of 20.01 inches. The total precipitation before January 1 of all the said forty-eight seasons was 480.15 inches, an average of 7.82 inches. This season's rainfall before January 1 is below the average, being only 4.07 inches. The figures up to and inclusive of 1889-90 were taken by Mr. Maslin from the reports of Drs. Logan and Hatch of the State Board of Health and the signal service at Sacramento; the remaining figures were furnished by the signal service at San Francisco. The rainfall at Sacramento is slightly in excess of that in San Francisco. Every sixth or seventh year appears to be deficient in rainfall. Following is the rainfall by seasons and the precipitation in each season prior to January 1:

SEASON JULY 1 TO JUNE 30	PRECIPITATION BEFORE JAN. 1	TOTAL FALL OF RAIN	SEASON JULY 1 TO JUNE 30	PRECIPITATION BEFORE JAN. 1	TOTAL FALL OF RAIN
1849–50	16.50	36.00	1874–75	6.75	17.70
1850–51	none	4.71	1875–76	12.16	26.53
1851–52	10.39	17.98	1876–77	3.75	8.96
1852–53	19.41	36.36	1877–78	3.23	24.86
1853–54	3.04	20.06	1878–79	1.82	17.85
1854–55	2.81	18.62	1879–80	6.34	26.47
1855–56	2.75	13.76	1880–81	11.86	26.57
1856–57	3.25	10.46	1881–82	6.00	16.51
1857–58	5.70	15.00	1882–83	7.55	18.11
1858–59	7.50	16.03	1883–84	2.92	24.78
1859–60	8.33	22.09	1884–85	12,46	16.58
1860–61	5.43	16.10	1885–86	17.20	32.27
1861–62	10.81	35.56	1786–87	3.10	13.97
1862–63	2.69	11.58	1887–88	2.56	11.56
1863–64	3.31	7.87	1888–89	9.46	19.95
1864–65	14.71	22.51	1889–90	16.99	32.27
1865–66	3.35	17.93	1890–91	4.14	16.58
1866–67	11.94	25.30	1891–92	7.89	18.53
1867–68	16.67	32.79	1892–93	10.66	21.75
1868–69	3.38	16 64	1893–94	7.05	18.47
1869–70	4.93	13.57	1894–95	12.67	25.70
1870–71	1.57	8.47	1895–96	4.10	21.25
1871–72	12.02	23.65	1896–97	11.10	23.43
1872–73	7.54	14.21	1897–98	4.07	....
1873–74	11.53	22.90			

PRESIDENT'S ANNUAL REPORT.

San Francisco, March 8, 1898.

To the Directors and Members of the California State Board of Trade.

Gentlemen :— I have the honor to submit my annual report as your President.

HAMBURG EXPOSITION.

Aside from the current and usual work of the Board during 1897 we were called upon to perform certain special work, of which mention should be made and a record preserved.

You will recall the fact that through your efforts the Legislature made an appropriation of $6000 with which to make an exhibit of our horticultural products at the International Horticultural Exposition which opened May 1st, 1897, at the City of Hamburg.

As the appropriation came from the State its disbursement and management had to be placed in the hands of Commissioners appointed by the Governor. He placed at the head of the Commission your Secretary and Manager, Mr. J. A. Filcher, with Mr. Henry F. Fortman and Mr. Robert Hector as his colleagues.

An exhibit was gathered, shipped and installed, and was managed on the ground, by Mr. Filcher, Mr. Hector relieving him towards the close of the Exposition. Growers and producers responded liberally and generously and by June 1st our exhibit was fairly installed.

It consisted of dried fruits as its chief feature, including also wines, brandies, olives and olive oil, and also an excellent display of the cereals, beans, hops, honey, etc., etc.

Canned and preserved fruits in glass and otherwise formed a striking feature of the exhibit and attracted much attention. Some fine specimens of our commercial woods were also included. Many large and beautiful photographs illustrative of our natural scenery, our orchards, harvest scenes, etc., added greatly to the charm of the exhibit. Appropriate literature in English and German was largely circulated. Twenty thousand copies of recipes for cooking our dried fruits were printed in German and circulated.

The expenses of this fine exhibit were kept within the appropriation, and sufficient funds remain to print the report to the Governor.

The results of this expenditure were quickly made manifest. Merchants and dealers not only in Hamburg (which is a very important distributing point for the German States) but in other cities of Europe, were put in communication with dealers and growers here and a trade for that year at once established. It is stated by your Secretary that we increased our shipments of dried fruits (mostly prunes) from approximately fifty carloads in 1896 to eight hundred carloads in 1897. The fruit dealers at the Exposition expressed great confidence in the marketable qualities of our fruits, and only doubted our ability to supply the demand when established.

We have only to study the wants of those people and the methods of packing and adhere religiously to a strict and honest grading to secure that market for all our surplus. While the exhibit was not directly under your charge, it owed its success largely to the experience of your Manager here, and to the indirect aid it obtained from this Board. The effort demonstrated what large results may be realized from a comparatively small outlay when judiciously handled.

CHRISTIAN ENDEAVOR VISITORS.

An opportunity was offered to accomplish some excellent results through the presence of the Christian Endeavor Society. This was one of the largest movements by visitors to our State which has taken place in our history. They were people of high intelligence and great moral worth. It was of signal importance that they should return to their homes with correct impressions of our State. Realizing this the State Board of Trade prepared for the reception of these people; and, during their week among us we entertained at our exhibit rooms several thousand and we now have the registration of over four thousand names entered by the visitors themselves Among other steps taken to accomplish the best results Mr. William H. Mills, one of your Directors, undertook the task of publishing a book upon the resources of the State designed as a Christian Endeavor Souvenir. The gratuitous contributions to this book I do not believe could have been obtained by any other person, or for any other cause, or for any other Association than this. It embraces a discussion of almost every topic touching our resources, and by gentlemen of undoubted ability to speak upon the subjects treated and was gotten out in a highly attractive style of workmanship. Each visitor to the Board took away a copy and we distributed on their trains and at their halls of meeting about ten thousand copies. A second edition has been produced of ten thousand copies. The first edition of ten thousand cost us $1,667.37, and the second edition we have without expense to the Board. No book upon California has brought more inquiries or done greater good.

LETTER CARRIERS ASSOCIATION.

Following the Christian Endeavor movement came the Letter Carriers Association. The members visited our rooms in large nnmbers and to them we gave each this book.

GOLDEN JUBILEE MINERS FAIR.

Out of our usual course came the part we have taken in the Golden Jubilee Miner's Fair now just closed. At the earnest solicitation of the Managers of that Fair we moved our entire exhibit to the Mechanic's Pavillion and added its rich treasurers to the unique and attractive display of our mineral wealth by the California Miners Association. Of this Fair I desire to record my admiration for its novelty, and beauty, and generally charming effect; and also for its instructive features as a vivid object lesson, portraying the discovery of gold on this coast and the profound influence it has had in the development of the State, and upon our civilization. That the Fair did not prove a financial success must not be allowed to detract from the great good it has done, and the pleasure and instruction it has given to thousands of our people.

ALASKA TRADE COMMITTEE.

Recently this Board has become the legatee of the Alaska Trade Committee's functions, and the duty is now upon us to carry forward the work begun by that Committee. Of its importance there can be no doubt. Whether we shall be able to overcome the adverse conditions standing in the way of successfully carrying forward the enterprise already inaugurated, is not so clear. There is certain territory which we can fairly claim as within our reach, notwithstanding the natural anvantages of certain Northern coast cities. But even this territory may be taken from us by the competitive energy of those cities unless we are on the alert. The methods to be pursued by this Board, in the discharge of this new trust, are not a proper subject for discussion in this report, but the duty is upon us to act and I invite the members to an immediate and earnest consideration of the whole subject. We are not only to exploit the field with a view to bring Alaska miners this way en route from the East and South, but there is still another and important opportunity for usefulness, in attracting those who return from the gold fields of the far north, to our State, both with a view to having them invest and remain among us, and also to come this way on their return to their homes in the East.

PARIS EXPOSITION.

The Board has taken the initiative in organizing preparatory to making an adequate exhibition of our resourses at the Paris International Exposition to be held in 1900. This movement should be followed by unremitting effort until the people of the State shall have taken the matter in hand and placed it in the way of successful execution. The fruits of the exhibit made at Hamburg demonstrated the fact that we may look to the European Continent for a large market. The opportunity to be presented at Paris will be much broader and therefore correspondingly greater results must flow from an intelligent display of our products at Paris.

NEW EXHIBITION ROOMS.

We are soon to occupy our new quarters at the new Ferry Building, where we shall have more comodious space for the display of our increasing exhibit. I recommend that when we are in possession, steps be taken to make our exhibit more comprehensive so as to more directly embrace all the products of the field, orchard, vineyard and garden; and of the mineral wealth and of the forests—in short, so far as possible, let our exhibit show in epitome all our varied resources and industries.

I recommend also that we institute a course of lectures—one each month—to continue throughout the year and that we invite the best talent available, to speak to us, and to our visitors upon questions affecting the material growth and welfare of the State.

We now possess a collection of California's products and have gathered a valuable store of experience, the result of ten years work. Our exhibit has great instructive as well as illustrative value and probably could not be reproduced for $50,000. It is important to the State that it be not only maintained at its present maximum of value, but should be enlarged from time to time, so as to represent every phase of our industrial life.

In my annual report for 1896 I reviewed the origin and history of the Board and presented in outline some of its work up to that time. I will not repeat that review. The Board has become one of the permanent institutions of the State, and is doing its work entirely through voluntary subscriptions. It collects and disburses for maintainance about $10,000.00 per annum. Except to the Secretary (who is also the active Manager) and his immediate assistants, no compensation is paid. The Board of Directors and, its presiding officers attend your meetings and conduct your affairs as a patriotic duty to the State, and at their own expense.

I trust that you will not weary in well doing, but that the same devotion to our State which has characterized your efforts in the past will abide with you and hold you to the discharge of like services during the coming year.

N. P. CHIPMAN,
President.

9th ANNUAL REPORT

9

. OF THE .

California State Board of Trade

UPON THE INDUSTRIAL RESOURCES
OF THE STATE OF CALIFORNIA FOR

. 1898 .

BY

GEN. N. P. CHIPMAN

Chairman Committee of Industrial Resources of the State

SUBMITTED MARCH 14, 1899

◆

> "Fruit growing is destined to be the ultimate glory of California."
> —*Horace Greeley, 1859.*

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EXHIBIT ROOMS
. FERRY BUILDING .
SAN FRANCISCO

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EXHIBIT ROOMS
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SAN FRANCISCO

NINTH ANNUAL REPORT.

Importance of Irrigation, Principal Question Presented —

"POWER vs. GRAVITY."

Shipments of Fruit, Wine and Brandy and Vegetables, together with Statistical Tables Showing Other Productions for the Year 1898.

By GEN. N. P. CHIPMAN,
Chairman Committee on Industrial Resources.
MARCH 14, 1899.

To the Directors of the California State Board of Trade.

GENTLEMEN : I herewith present the Ninth Consecutive Annual Report of the shipments from the State of fruit, wine and brandy and vegetables,—the product of our orchards, vineyards and gardens, for the year 1898. These reports must not be taken as showing the entire output of the State, for I take no account of home consumption,—itself an important element in the agricultural life of our people. My purpose has been rather to report the growth and progress of these branches of our agricultural industries as bringing wealth to us from without our own borders, and as a direct re-enforcement of our capital engaged in these pursuits. There has also been another and not less significant purpose. This Board had its origin in 1888 in the belief that Horace Greeley uttered an inspired prophecy forty years ago, when he wrote from San Jose that "Fruit is destined to be the ultimate glory of California." It has been our purpose, in part, to bring about the fulfillment of this prophecy. The few who still remain as active and faithful workers in this Board will remember that our efforts were decried and belittled because of the alleged insignificance of horticulture as an index to the future greatness of California. The great wheat growers, with their vast ranches, tilled by migratory labor, looked with contempt upon the orchardist with his twenty or thirty acres in fruit trees; the wool grower who counted his herds by many thousands scorned to encourage the home seeker to engage in so small and trifling an occupation as growing fruit; the miner, who, when not in his shaft or his tunnel with pick and shovel, is floating among the alluring clouds of dreamland, believed that the ultimate greatness of the State reposed in the discovered and undiscovered auriferous deposits of our inexhaustible mountains of mineral wealth; the lumberman who was zealously cutting away at our primeval forests, oblivious of the menace he was offering to the agricultural possibilities of our valleys, and equally oblivious of the fact that great wheat ranchers and great sheep raisers were not great consumers of lumber, in his straits was exploiting the markets of foreign countries for his surplus energies and capital; the merchant and manufacturer, with like obliquity of vision, were looking over the heads of our own people and beyond our own boundaries for customers for their wares, and seemed not to see how great was the importance of creating a market at home by increasing our population. I would be unfaithful to history, however, not to record the fact that in Southern California light had already dawned. The development of that part of the State will always stand out in our annals as the brightest page in the emergence of our commonwealth from its slavish devotion to a form of agriculture which made progress and advancement impossible. I should, in further acknowledgment of the truth, also add that there were a few places in Northern California where the spirit of the South had taken hold of the people, and the importance of the new agriculture had dawned upon them. Among these I may name Fresno, Santa Clara Valley, Vaca Valley, Oroville, the foothill regions of Auburn and Newcastle, and some other places.

Such were the general conditions when this Board came into existence.

The report which I now submit is incontestable proof that we were right in our conceptions of the duty of the hour. We believed, and we acted upon that belief, that large land holdings in single ownership were retarding the growth of the State; that what we most needed was re-enforcement of our population and that it could come only by breaking up these holdings; that the natural conditions of soil and climate, rainfall and facilities for irrigation where rainfall was deficient, combined to make California the future orchard of America; that products which would bear transportation by rail to Eastern markets, and products, too, which could not be there grown, were much more important than the cereals that went into competition with the labor of the world and had to be carried half around the globe to market; that land so situated as to climatic conditions as to produce every fruit known to the globe, except in the extreme tropics, should not be given over entirely to products that can be grown in every country on the globe and in many countries more profitably than here; that it was a perversion of God's gifts to throw away the incalculable advantages of our matchless climate and go on forever growing wheat; that California is adapted by every favorable condition to intensive farming, where "the man with the hoe" guided by intelligent industry can entice from the soil of ten or twenty acres of good land a more comfortable living than can be wrested by the same man from the average hundred-acre farm elsewhere; that our immunity from the extremes of heat and especially of cold, and the physical pleasures of life we enjoy, with a climate Edenic in its mildness and charm, would attract home seekers in large numbers if the way were pointed out to them, and the land could be found for them to occupy. These were some of the beliefs entertained by us when we entered upon the work of this Board. The results of our labors have been recorded from year to year, and I will not repeat them. I await with confidence the census of 1900 to verify our most ardent hopes and our most optimistic predictions.

It will be found by consulting the tables appended to this report that the horticultural industry of this State, embracing the orchard, vineyard and garden, brings in more money from without the State than all the exports of the cereals grown in the State; and, it will also be seen that in developing this industry we have not reduced materially the output of cereals nor the output of wool. Of course, the orchards do not encroach upon the mines, and, as the tables show, that industry has steadily advanced in development and now reaches an annual output of over $25,000,000. The lumberman has awakened to the value of his increased home market which for packing boxes alone is worth vastly more to him than his entire export trade.

The year of 1898 was a year of drouth in portions of the State and it was a year of much injury from frost. It has been generally supposed that the fruit industry, as well as the cereals, suffered severely and that there would be a large falling off in shipments. Let us examine the tables. They were made from the returns of the Transportation Companies and represent actual shipments to points in other States. For the data as to shipments by rail I beg to acknowledge my obligations to Mr. A. D. Shepard, General Freight Agent of the Southern Pacific Company, and to Mr. W. E. Bailey, Auditor of the Santa Fe System. The shipments by sea are compiled from the annual issue of the San Francisco Journal of Commerce.

In 1897 we sent away of fruit (including nuts), wine, brandy and vegetables, by rail and by sea, 48,072 carloads (of ten tons each). In 1898 we sent away 56,149.6 carloads. The following table compactly shows the gain and loss of each class carried into the table, expressed in carloads of ten tons each.

TABLE OF GAINS AND LOSSES, 1896 AND 1898 COMPARED.
Carloads of 10 Tons Each.

KINDS.	1897	1898	Gain	Loss
Green Deciduous	7,235.0	6,973.2	....	261.8
Citrus Fruits	9,854.7	18,065.9	8,211.2	....
Dried Fruits	7,515.9	7,666.3	150.4	....
Raisins	3,906.5	4,779.6	873.1	....
Nuts	580.8	581.6	.8	....
Canned Fruits	7,346.4	5,222.0	....	2,124.4
Vegetables	4,734.6	3,847.0	....	888.6
Wines and Brandy	6,897.8	9,014.0	2,116.2	....
Totals	48,071.7	56,149.6	11,351.7	3,274.8
Net Gain, Carloads	....	....	8,076.9	....

Remembering the frost damage in certain localities and injury from drouth, where water was not obtained for irrigation, this is certainly a most gratifying result. The increase in citrus fruit cannot fail to challenge notice. The best previous year for this fruit was 1895, when we sent away 11,582 carloads. But 1898 exceeds that year by 6,476 carloads, and 1897 by 8,211 carloads. It is also gratifying to note that of 1898 shipments of oranges 589 carloads went from Northern California. Since we commenced to ship oranges from the north the record stands: 1893 carloads, 4; 1896 carloads, 81; 1897 carloads, 286, and last year, 589. Considering that the first oranges to ripen come from the north and go into home consumption largely, this is an encouraging showing.

The increase in raisin shipments over 1897 was 873 carloads. The largest previous shipment of raisins was in 1894, being 4,695 carloads; the industry began to decline after that year. I think its recovery is directly attributable to the placing of a protective tariff duty upon Zante currants (a competitor of raisins), towards the accomplishment of which this Board exerted a very considerable influence. To the present schedule of duties is due also a better feeling as to the citrus industry. The large increase in wines and brandy gives evidence of better times for the producer. The increase was about 30 per cent over 1897.

The fruit growers whose crops escaped the frost (and the returns show that there were a good many such), made good profits last year. I have heard of many mortgages being canceled by the orchard returns. If we are fortunate enough to escape this year, as there is every reason for believing we shall, a profitable and ample market awaits us in the States east of the Rocky Mountains. We shall find no occasion to seek foreign markets. When we hear of frost damage to California fruit it must be remembered that our orchards extend from Redding, Shasta County, to San Diego, a distance of 650 miles, and a country from 50 to 100 miles wide. The orchards are located in every conceivable situation as to protection. Conditions differ in different parts of the same neighborhood, and widely differ in the counties and in various regions of the State. It is this remarkable diversity of climatic conditions and topographical situations that gives immunity to one orchard where another suffers. Nothing could more clearly demonstrate these facts than the output of last year under the adverse conditions which prevailed in many parts of the State.

We are shipping largely of green apples, and this variety of California fruit may now, in the season, be found in the London and Liverpool markets. One of the Railroad Companies shipped 200 carloads of apples to Eastern States, some of which went to England. We also sent green apples to many other foreign countries. In certain favored localities (around Watsonville, for example) extensive plantings of apple trees are being made. This fruit has been found to be most profitable for our export trade.

I append hereto shipments of fruit and fruit products to these countries going by sea from the port of San Francisco. You may remember that I made a similar table in my report for 1891. A comparison will show a very marked increase in this foreign trade. The table is worthy careful study as showing what the future has in store for us in that direction.

I may as well say here as elsewhere, what it would be unpardonable to omit, that the Spanish-American War has opened great and unexpected possibilities, if not actualities, for California. Wise men, not Californians (and some wise men who are also Californians) foresee, and have placed themselves on record as believing, that the most important theater of commercial activity on the globe is soon to be in the countries washed by the Pacific Ocean. It is the belief also of these wise men that the City of San Francisco and the State of California, of all American cities or states, are to be the most benefited by the momentous turn in the wheel of fortune which the United States has recently given. I disclaim having the wisdom of these Seers, but I beg to add my humble concurrence in these forecasts of the future for our beloved State.

I have continued the tables submitted last year in the present report of the output of hops, beet sugar, wool, wheat, minerals and some other products, showing the productions for a series of years. I add to these the figures for 1898. I invite attention to the fact that notwithstanding the short rainfall the tables show a larger crop of wheat for 1897–98 than for the year 1896–97. The reports of the Produce Exchange show the output of wheat for 1896–97 to be 872,602 tons, while for 1897–98 it was 917,589 tons. The beet sugar output fell off fully 50 per cent. The Board will remember that I made a special report upon the sugar beet industry last year. While the unexpected drouth in the sugar beet regions of the State, where irrigation was not provided for, materially affected the output, it has by no means dampened the ardor of those engaged in the business. New and more extensive plants are in process of erection, and this year bids fair to largely increase the beet sugar product of the State.

The mineral output has held up to 1896 and 1897. I have been furnished by Prof. Yale, of the State Mining Bureau, the mineral products for 1897, which will appear in the comparative tables of this report. The detailed figures for 1898 will not be obtainable for insertion at this time, but will appear in the next report. It is believed by Prof. Yale that the mineral product for 1898 will equal that of 1897, notwithstanding the short water supply in the mountains. I am indebted to Prof. Yale also for a list of mineral-producing counties of the State, of which there appear to be forty-nine, embracing nearly the entire State, and showing also the value of the product of each county. He also gives a valuable grouping of the counties and the mineral products found in them. Some pleasant surprises will be given by these groupings to persons unfamiliar with mineral distributions in the State, and I commend this analysis to those seeking investments in our mines.

I have also for the first time been able to obtain statistics relating to our lumber output. The returns are not complete, but are approximately so as to quantity, although less accurate as to kinds, other than redwood. Some small mill owners refused to give their cut, but all the large concerns cheerfully responded. Our commercial woods are redwood, sugar pine, yellow pine, spruce, cedar and fir. The returns in hand show the following output for the year 1898, in thousand feet:

REDWOOD.	SUGAR PINE.	YELLOW PINE.	SPRUCE.	CEDAR.	FIR.
276,451	42,176	180,454	22,688	2,015	24,210

Total Redwood	276,451,596
Total All Others	327,565,171
Total All Kinds	604,016,767

I have been shown a tabulated statement of the principal mills engaged in box making. They consume pratically nothing but our mountain timber and but little redwood; and, for the most part, the lumber is worked into various forms of fruit packing boxes. A very large number of orange, lemon and raisin boxes are used; and a large number for green fruits; each year shows an increase in the quantity of boxes used for dried fruit. The table to which I refer showed that the enormous quantity of 78,000,000 feet of rough lumber is used for these purposes—which is about 25 per cent of all our mountain lumber. This trade is the creation of the fruit industry. It is quite within the possibilities that we shall this year require 33 per cent of this lumber for packing boxes. Aside from these uses we consume large quantities of lumber for picking boxes and drying trays.

I have appended to this report Mr. Maslin's valuable table of rainfall at Sacramento for the period commencing 1849 and ending 1897, bringing it down to and including 1898 to January 1, 1899. A similar table showing temperatures giving the mean, maximum and minimum by years, at Red Bluff, Sacramento and Fresno for the Sacramento and San Joaquin valleys in Northern California; San Francisco for the coast region; and Los Angeles for Southern California, together with the rainfall, should possess great value. Such a table will be appended to this report and be made a permanent exhibit in the future. It is compiled from official records by the U. S. Weather Bureau, for which I am indebted to Mr. G. H. Willson, Forecast Official.

Nothing could more strikingly illustrate the advantages of our climate than the comparison of temperatures for February of this year in the region east of the Rocky Mountains and in California.

It is true the cold wave of that month which swept over those States from British Columbia and Canada to the Gulf of Mexico was exceptional. But experience in Florida and Georgia and elsewhere in recent years has shown that fruit growing in the Atlantic and Western States is a very precarious occupation, and that February of 1899 is liable to recur. Mr. Willson has furnished me a table showing temperatures in various States compared with those registered in California for February, 1899, which I append hereto.

Looking back over the year and its results for California there is every reason for future hopefulness. Localities of the State suffered, and as a whole the State by no means reached its maximum of production. Many branches of business other than agriculture felt the pressure of hard times. But I believe that, omitting certain limited localities, the State made a decided advancement.

Adversity is not without its compensations. The last year has taught us that we must prepare for irrigation. Fortunately the means are at hand. It has been demonstrated that expensive irrigation systems are not required to bring the land and water together, and I think the experience of 1898 has shown that in most parts of the State where irrigation is required power will be found cheaper than the systems giving us water by gravity. Millions of dollars have been expended in single systems, including reservoirs, in some parts of the State. The consumers must support these systems or they cannot survive. In times of drouth should the reservoirs fail or run low, whole neighborhoods are subjected to the danger of being cut off, with all the attendant calamities which must follow. Happily no such exigency has yet arisen and probably never may do so; increased reservoir capacities and provident measures to conserve rainfall will provide against these dangers, but they are very costly. The large outlay attending these enterprises, and, what is still more important, the difficulty of obtaining water at any cost by gravity in some places, stimulated by the necessity for water during such a season as that of 1898, has developed a new and cheap method of irrigation in all parts of the State. I have taken some pains to obtain reliable information upon this most important subject, and the result of these inquiries is very encouraging.

Appended to this report I have given some of the replies to my questions—the leading idea being to bring out the cost to the individual planter or orchardist for water pumped by his own plant or in co-operation with one or more of his neighbors.

Under nearly all the orchard lands of the State are inexhaustible water tables from 15 to 100 feet below surface—generally from 20 to 40 feet, These strata of water have been found ample to supply all needed surface irrigation. For small plants of say three to ten horse-power, the gasoline engines have been found entirely satisfactory, both in ease of manipulation and cheapness of fuel, and it will be seen from the replies hereto appended that these engines are in successful operation with as high as 100 horse-power. I invite special attention to the report of Mr. C. M. Wooster, to the memorandum of Mr. William H. Mills, and to the address of I. H. Thomas, members of this Board. Mr. Wooster resides at San Jose and speaks from personal knowledge of what has taken place in the hitherto unirrigated Santa Clara Valley. The statements made by Mr. Mills have high significance as the result of much intelligent observation and a most careful study of this problem of cheapening irrigation and making it available to farmers and orchardists. The statement does not admit of abbreviation; I can make no intelligent reference to it except by embodying it as part of my report without curtailment. It is as follows:

Mr. Mill's memorandum.

"Fruit raising, vine growing and small farming in California will depend for their success in a very great measure upon the artificial application of water. These applications have proven profitable and will continue to be so under favorable conditions without irrigation; but they are far more profitable with it. Every orchardist and vineyardist ought also to be a gardener, and, in order to diversify the products of the land, irrigation must be resorted to. Clover, berries, gardens, orchards and vineyards should be found on the same holdings and should occupy the attention of the cultivator of the soil in their various seasons. This diversity would in a measure equalize the demand for labor throughout the year and greatly improve the labor conditions. Irrigation will enable the orchardist and vineyardist to supply his table with poultry, eggs, milk, butter, vegetables aud fruits, and thus confer upon his holdings its first and paramount duty of affording him a complete subsistence. The problem of living having been solved, the question of profit would become more certain and happily less important.

The ancient methods of irrigation will be superseded by modern and more economic methods. This revolution will be referable to the cheapening of mechanical power and the increased efficiency of pumping machinery. Under the old method a main canal carrying water at an elevation to lay a certain district under irrigation was necessary. Its construction and maintenance were costly, while the application of water to lateral ditches was also costly and unsatisfactory. A gravity supply of water can be passed over a surface where the decline is constant. There are no lands sufficiently level to make more than 60 per cent of their surfaces subject to irrigation from any point of elevation in their vicinity.

There are seasons in which the excess of precipitation makes drainage a problem difficult of solution. In such seasons, a costly water system constructed after the old plan of canals with lateral farm ditches is uneconomic as well as useless. The money invested in it earns nothing in such seasons, and as a rule in the country in the northerly portions of the State the level areas have more to fear from excessive precipitation than from drouth.

If it be suggested in answer to this statement that the summer months are dry months and that the application of water during the heated term will enable the cultivator of the soil to avail himself of the superior productiveness of the summer months, the answer is that the application of water by canals and lateral ditches produces in all countries where the practice has been in vogue swamp conditions on the lowest lands, unless a supplemental costly system of drainage is resorted to, and besides, as already noticed, it cannot be applied to the entire surface of the land.

Naphtha or gasoline engines have furnished a very cheap power for pumping, while improvements in pumps have made their use far more economic than the application of water by more primitive and crude method of ditches. Of course, the water must be brought to a point from which it may be pumped economically, and this can be done in three ways; first, by a main canal, which is tapped only with the suction of pumps. Such a canal would cost less and would be more permanent in its construction, because it would not be constructed with reference to supplying water to laterals. Second, by the use of the channels of living streams. For the most part the irrigable lands of California are accessible to streams. Third, by the sinking of wells. Concerning this latter, it should be noted that an irrigated country soon fills with water, and wells in such a country afford an ample supply for such portions of land holdings as need irrigation. The economic use of the pump is also greatly re-enforced by the facility with which, in modern times, electrical power is transmitted at cheap rates.

Some practical experiments in pumping were made in various parts of the State during the drouth season of 1898. It is stated on seemingly reliable authority that there are not far from two thousand irrigation pumps in operation in the county of Santa Clara alone. For the most part these are using wells, and their use has proven beneficial and economical. (See Mr. Wooster's report. N. P. C.)

In Capay Valley, with irrigating machinery, pumping from Cache Creek was practiced and highly satisfactory results obtained. It was found that a six-inch pump, using a fifteen horse-power gasoline engine, was capable of delivering forty-two thousand gallons an hour (700 gallons per minute) at the end of an eight-inch pipe two thousand feet in length at an altitude of thirty feet above the surface of the water. (About seventy miner's inches. N. P. C.) This would give two hundred and fifty gallons to each of 168 trees per hour, a little in excess of the equivalent of one inch of rainfall. Ten hours' pumping, allowing 250 gallons to each tree, would give a daily efficiency of the pumping machinery equal to 1,680 trees, or fully sixteen acres a day. Excluding the labor of handling the pipes, which was usually performed by the owner of the orchard, the cost was $5 per day. The cash outlay, then, to the orchardist, excluding his own labor, was $5 per day for the application of 250 gallons to each of 1,680 trees through a pipe line two thousand feet in length. At a greater elevation than thirty feet the efficiency of the machinery was reduced. Careful arithmetical observation, however, demonstrated the practicability of supplementing the pumping station at the creek with pumps stationed at the end of the pipe line to reach still higher elevations, and practically demonstrated the superior economy and advisability of pumping as a substitute for ditches. Every portion of an orchard, however uneven its surface, could be reached with the pipe line, and from a single pumping station, where the highest point of the land was below thirty-five feet elevation, approximately 500 acres of alfalfa could be irrigated. The application of 27,000 gallons to each acre could be made for 33⅓ cents per acre. This is the equivalent of one inch of rainfall, or the equivalent of three inches of rainfall on each acre could be made for $1 per acre; or the application of the equivalent of one inch of rain at three different times in the season for the same sum, not including the labor of moving the machinery or the necessary movement of the pipes over the surface of the land. The experiment brought plainly to view the fact that at below thirty-five feet elevation above the surface of the water the entire cost, including all the labor employed, would be the equivalent of one inch of rain for forty cents an acre, or at most $1.25 for the application of this one-inch equivalent three times in a season.

The machinery used for these experiments was constructed on a truck, movable from point to point, and the result obtained was very highly satisfactory. Over an accessible surface the water was evenly distributed, and when the irrigation was completed there was no injurious excess in low places or deficiencies upon the higher elevations of the surface.

The equipment with which these results were obtained embraced the following: One 15 horse-power gasoline engine, one 6-inch centrifugal Krogh pump, one truck 8-inch tread of tire, three thousand feet of 8-inch wrought-iron pipe, with fittings, including priming pump, jack screws, oil tank and duck cover; and cost $2,000.

The capacity of the equipment was equal to the duty of irrigating throughout the season 500 acres of land, and upon that area would supply all the water necessary for any species of cultivation desired, whether of alfalfa or orchard. Its capacity was equal to 1,200 acres of orchard land, and, as already noted, the original investment was but $2,000.

To recapitulate these conclusions, the experiment in Capay Valley demonstrated that a stationary pump, eliminating the cost of trucks designed to make the equipment portable, with 2,500 feet of pipe, cost less than $1,500. For orchard purposes the efficiency would be equal to the duty of irrigating 1,200 acres of orchard or 500 acres of alfalfa throughout the entire summer season, and the application of 135,000 gallons of water to each acre during the season would cost $1.65 per acre for the season, not including the labor of moving the pipes; or, if the labor of moving the pipes is included, $1.75 for the season.

Aside from the advantages already noted, the superior efficiency of applying the water to the entire surface of the land and the control of the quantity of water placed upon the land, the interest on the original cost of the equipment is to be considered. It is doubtful if, by a canal system, lands anywhere in the State can be laid subject to an irrigation system for less than an original cost of $10 per acre, and this original investment would be permanent and the interest element connected therewith would be a perpetual charge against the original equipment. $10 an acre for 1,200 acres of orchard would be $12,000, or for 500 acres of alfalfa $5,000, as against $1,500, the original cost of a co-efficient pumping plant.

The application of electrical power would reduce the cost from the figures herein given. To the estimates relating to the canal system must be added the cost of maintenance, the waste of water by absorption and evaporation, and the very unsatisfactory method of applying the water by gravity.

It is within reasonable probability that from sixty to seventy-five per cent of the orchards and vineyards of the State could be laid subject to irrigation by pumping at a cost not exceeding that given in this statement.

This by no means exhausts the subject. All over the State wells of sufficient capacity to supply a three-inch pump on small areas of 10 or 15 acres, using a five horse-power engine, are to be found. There is scarcely a land holding where an equipment of this kind costing less than $1,000 cannot be made available. The application of this cheaper and less ambitious equipment would greatly diversify the agricultural pursuits of the State; would enable cultivators of the soil to beautify their holdings and furnish the full round of home necessities."

Turning to Mr. Wooster's report I summarize as follows:

"One plant pumping 300 gallons per minute is now running at a cost of 7 cents per hour; another raising 600 gallons per minute from a depth of 70 feet, with gasoline, is costing $2.50 per day. In some instances crude oil is used as fuel with the following approximate results: 450 gallons per minute, depth 70 feet, $1.56 per day with Fulton pump; another example, same pump and engine, cost per day $2.25; attendance not included—simply cost of fuel." Mr. Wooster figures as a safe estimate for No. 4 centrifugal pump (i. e., 4-inch discharge as I understand it), gasoline power, 70 feet deep, cost $2.50 to $3 per day, discharging 600 gallons per minute. This is something more than 60 miner's inches of water, which means, as all will understand, quite a large ditch of water; and it means water an inch deep over 13 acres in 10 hours or 2 inches deep over 6½ acres.

I also append hereto a letter received from the Hercules Gas Engine Works, to which attention is invited. I deduce from this letter the following facts:

It will cost just twice as much to raise water 100 feet as to raise it 50 feet, and the rule holds good at other depths; the company installed a plant in Colusa County which raised 10,000,000 gallons in 24 hours, sufficient to cover 370 acres 1 inch deep at a cost of 4 cents per acre—or approximately $16 per day; approximately, to pump 100 gallons per minute to a height of 20 feet required one horse-power and a consumption of ⅛ gallon of distillate oil, costing 10 cents per gallon; and for greater or less heights in like proportions; the Company has in the last two years turned out 4,000 horse-power, divided into several hundred units—from 2½ horse-power to 100 horse-power; and of these fully one-half have been devoted to pumping plants for irrigation in all parts of the State.

At my request our Secretary has addressed letters to various pump manufacturers for information on this subject, but I regret to say that they have not come to our assistance by replying. There are several different companies offering engines not unlike the Hercules, and, so far as I know, of equal merit, but we have no reports from them. It is not our purpose to commend any particular engine or pump. What we are seeking to impress upon the public mind is the fact that water for irrigating our fields, orchards, vineyards and gardens is available to all at moderate cost. We are seeking to show this from no standpoint of theory merely, but from the actual experience of those who are using the pump for irrigation. One or two more illustrations, and I will submit the question of power versus gravity. Mr. John Morrison, of Reeds Station, Yuba County, informed our Secretary that he has a gasoline plant which cost $500. Last year he irrigated with a rotary (centrifugal) pump a thirty-acre orchard; gasoline cost him 10 cents per gallon; he irrigated 10 acres per day at a cost of 60 cents; it required 3 days to go over his orchard and he irrigated it three times during the summer at a cost for fuel of $7.50; the engine required no attendant; he estimated the cost about one-fifth of the cost formerly when he used steam for power. The lift is about 30 feet. I add my own experience. I pump from the Sacramento River with steam and a No. 5 centrifugal, raising the water 35 feet through 2,000 feet of pipe; the cost is the wages of an engineer and price of 1½ tiers of two feet, wood for 12 hours and oil for the machinery. The plant delivers from 50 to 60 miner's inches of water, and I expect it to supply the needs of 250 acres of orchard and 20 acres of alfalfa, and have idle days besides.

In a recent number of the Troy (N. Y.) "Daily Times," in an article on California, it was said: "There are large areas in California in which conditions favorable to cultivation of fruit and other crops can be maintained only through extensive and costly artificial irrigation, the water being brought from the mountain streams and storage reservoirs. When the rains fail to fall for a considerable period, which is not infrequently the case, even this recourse is endangered." The facts which are given above are a complete refutation of this statement. For example, it has been thought hitherto that irrigation in the Santa Clara Valley was not attainable because of the "extensive and costly" systems of reservoirs and canals from distant points in the mountains. And yet within two years nearly that whole valley has been brought under successful and cheap irrigation by digging wells.

It is against the record that rains frequently "fail to fall" here in their season. It has been twenty-one years since we had a season like that of 1897–98, and meteorological statistics show that we have had but five dry years within the past century; and, now, with the light that has come to us by experience, even these infrequent and widely separated dry years no longer bring dismay as once they did. The Troy "Times" and its readers are referred to this report as evidence that even in a dry year California will hold its rank as one of the great wealth-producing States of the Union.

Respectfully submitted,

N. P. CHIPMAN,
Chairman of Committee on Industrial Resources.

APPENDIX.

I. H. THOMAS' ADDRESS.

Mr. President and Members of the State Board of Trade:

The time being so short since I received notice that the subject of irrigation and its opportunities for development by pumping plants, relative cost of pumping, etc., would come before this meeting, I have not been able to get the exact cost and capacity of the various pumping plants that have been and are being established in this (Tulare) county.

The small amount of rain during the months of October, November, December and January, and the scarcity of water in the streams which furnish the water for irrigation in this county, connected with the great number of injunctions and lawsuits now pending as to the rights of the parties appropriating the water from said streams, has awakened a great interest in pumping plants, some of which are now in successful operation, while others soon will be. In my remarks I will confine myself mostly to those which are now in operation.

Mr. J. D. Waugh, living in the foothills, has a five horse-power engine. With this engine and pump he raises 212 gallons of water per minute from a well 27 feet deep. He uses crude petroleum from the Coalinga Oil Mines at a cost of 7 cents per gallon laid down in Visalia. When he first commenced the use of crude petroleum he used five to seven gallons in 12 hours, but he is now using only three gallons of oil in 12 hours, and at a cost of, say, 21 cents for fuel, he is raising 152,640 gallons of water. He has his oil shipped in 100-gallon drums, and will utilize his water in growing an orange grove.

The Fleming orchard has a pumping plant, consisting of one ten-inch well 45 feet deep, with a nine-inch centrifugal pump run by an old fifteen horse-power traction engine. This pump is lifting 2,000 gallons per minute and has a capacity of 3,500 gallons per minute. The well would supply 2,500 gallons per minute. The cost of running this well is about $4 for wood per 12 hours and $2 per day for engineer. They contemplate running this plant day and night, which will reduce the cost and be a saving in the water, as the main head ditch will be kept full all the time.

Jasper Harrell has a plant on a large scale, not yet in full operation. He has four thirteen-inch wells, depth 48 feet, 100 feet apart. Has his pump in the center and will draw from the four wells. Each well has a capacity of a six-inch discharge pipe. He calculates to make a reservoir of 40 acres, with embankments 12 feet high, and will use the water for his ranch of 8,000 acres in alfalfa. This plant will be run by electricity when the power plant is completed at Visalia. He will use a thirty horse-power Atlas engine and eight-inch centrifugal pump.

There is one pumping plant being put in near Tulare to use the gravity system. This plant is not yet in operation.

Several pumping plants are in operation around Lindsay, for the purpose of irrigating the orange and lemon orchards. The depth to water there is 65 to 100 feet. They calculate to use electricity as soon as the Kaweah Power Plant is completed, which will be in June.

James Morton, east of Tulare, has a 12-inch well, 62 feet deep, uses a 7-inch centrifugal pump, 22 horse-power threshing engine, uses 1½ cords of wood in 12 hours, raises 1,800 gallons of water per minute. This will, in his soil—sandy loam—irrigate one-half acre per hour, and two such irrigations are sufficient for the season; and in red soil this would irrigate about two acres per hour, and would require about four irrigations for the season. With a proper engine it would not take so much wood, as the threshing engines were not constructed for burning wood as fuel.

W. A. Wallace, near Goshen, has a 12-inch well, uses a 10-horse Hercules engine, uses distillated oil for fuel, and with a 6-inch pump he raises 1,000 gallons of water per minute, at a cost of $1.75 for distillate each 10 hours. This seems to be the most economical plant that is now in operation.

There are many advantages to be gained by the pumping plant system over the system of taking water from the streams, one of which is having the water under your control at the time you need it; another is your water is free of the various seeds that spread over your land from channel irrigation, thereby making the expense less in keeping the land in good condition for the growing crops. One of the greatest advantages with the orchardist is a preventive of great injury by frost. The object lessons of the past winter in this section are indisputable. Where late irrigation and winter irrigation was followed with good cultivation, the citrus and deciduous orchards stood the temperature without damage to them, while adjoining lands which were dry and uncultivated were badly injured at a temperature of 22 to 28. With a pumping plant ready and the temperature at the freezing point, by filling the ditches through the night from the wells with water at 65 degrees, it would raise the temperature several degrees in the orchard, and many times save a fruit crop that would be entirely destroyed by the frost. The difference between the temperature of the water and the frost at the killing point, 28 degrees, being about 37 degrees. Thus it will be seen that the atmospheric temperature would be raised sufficient, by the temperature of the water, to save the fruit; and again by thoroughly irrigating the land in the winter, making the moistures meet, with a good, thorough, deep cultivation following, but little if any water would be needed through the warm season, when the flooding of land often does more harm than good.

I. H. THOMAS.

C. M. WOOSTER'S LETTER.

San Jose, Cal., March 22, 1899.

General N. P. Chipman, San Francisco, Cal.—My Dear General: As near as we can arrive at a conclusion there are about fifteen hundred irrigating plants of all kinds in this valley proper. About eight or nine hundred of them have been put in during the past three years. They comprise all kinds, sizes and means of raising water. Many of them are centrifugal pumps run by steam. This class comprises the larger plants, where from fifteen to forty horse-power, and in some few instances a larger horse-power, are used, and the size of the pumps range from four inches to twelve inches. Most of the smaller plants are run by gasoline, and many of these are also centrifugal. Some of them are of the Fulton pattern, which are double-acting pumps, manufactured at Galt, and particularly adapted to deep wells, and I must say they are very satisfactory for use in raising water from a greater depth than one hundred feet. From one hundred to four or five hundred feet they work admirably.

Many of the orchards of twenty acres have their own pumping plants. Some ten-acre orchards have a plant and sell water also to neighbors. Most of the larger plants are so arranged that they also sell water to adjoining orchards, and by this system, which is now pretty well developed, owing to the drouth of last year, the principal orchard district of Santa Clara County is pretty well protected in the way of irrigation.

The cost, I find, differs materially in the different kinds of power, sizes and depths of pump and well. One plant pumping three hundred gallons per minute is now running at a cost of seven cents per hour. One plant with No. 4 pump, raising six hundred gallons per minute at a depth of seventy feet with gasoline, is costing $2.50 per day. This is unusually low, I believe. There are also being used this year several plants operated by crude oil as fuel, and I find the following figures to be the approximate results, or, in fact, the stated results, from its use: Four hundred and fifty gallons a minute, at a depth of seventy feet, crude oil, costs $1.56 per day for fuel. This applies to the Fulton pumps, and another instance where the same pump is used and gasoline as power, $2.25 per day is consumed in fuel. These figures, of course, do not allow for attention, but simply include the actual cost of fuel. Figuring from what may be a safer average, that of a No. 4 pump, centrifugal, with gasoline as power, at seventy feet depth, cost $2.50 per day, and really, under the prevailing price of gasoline, I believe this would now cost $3 per day, the real cost of irrigating, providing this is a safe average, and I believe it to be so, this would result in six hundred gallons per minute, thirty-six thousand gallons per hour, or three hundred and sixty thousand gallons per day of ten hours. Such a stream of water is calculated to irrigate about five acres per day. This is done by cross-plowing and flooding the entire surface in the style of a checker-board at an average depth of six inches. This rule would vary, of course, according to the condition and kind of the soil. The heavy lands would absorb water less rapidly, and, of course, sedimentary or deposit soil would consume more.

The average cost of water to those who buy it from neighboring plants for a stream flowing from six to eight hundred gallons a minute is ten to twelve dollars per day, counting on ten hours a day. Provided that six hundred inches a minute will irrigate an orchard of five acres per day of ten hours, making three hundred and sixty thousands gallons and counting on one inch of rain being equivalent to twenty-seven thousand one hundred gallons per acre, each irrigation by this process would give an equivalent to a little more than two and one-half inches of rain, but these figures being of the best experiments I do not believe that the average would justify quite as high an estimate. A better and safer estimate would probably be four acres per day upon that basis which would make it equivalent to about two inches of rain.

It is undoubtedly true that the water spread upon an orchard by artificial process is not so valuable to the trees or their product as in nature's way, as under the influence of a storm and the peculiar humidity of the atmosphere giving life and strength to the trees through the bark and the leaves, which are the lungs of the trees, etc., the benefit of the same amount of water by rain is certainly much greater than that of artificial irrigation.

But, generally speaking, I believe it is safe to say, that at a cost of about three dollars per acre the orchards of Santa Clara County can, under the present process of irrigation, be irrigated, and they are generally flooded two or three times, which would cost six or nine dollars per acre per year. Average cost of plant about $1,200. Yours very respectfully,

C. M. WOOSTER.

THEO. POINDEXTER'S LETTER.

San Francisco, March 28, 1899.

J. A. Filcher, Esq., Secretary California State Board of Trade, Union Ferry Building, City—Dear Sir: In compliance with your request, I will try to answer your inquiry, though I must admit it is rather a difficult undertaking to set forth, in a definite way, anything like an average of results that are obtained from the hundreds of pumping plants we have sold in this State, for the reason that there are hardly two plants working under similar conditions; and the efficiency of a plant will be determined, in a great measure, by the character of the soil, by the "lay of the land," and also by the nature of the crop to be irrigated.

It is generally conceded that under anything like reasonable conditions it is profitable to irrigate by means of pumps and suitable motive power, and it is gradually dawning upon the farmers and horticulturists of this State that they cannot get any better insurance than a good pumping plant.

The cost of irrigating is regulated almost entirely by the height the water has to be raised. Where water is obtained from deep wells, the cost is much higher than from shallow wells, the proportion being even, that is to say, it would cost just twice as much to pump a given quantity of water from a well 100 feet deep as it would to pump the same quantity from a well 50 feet deep; and the proportion is always even.

We installed a pumping plant in Colusa County, which pumps the water from the Sacramento River and raises it 27 feet. The capacity of this plant is over 10,000,000 gallons in 24 hours. The cost of operating is approximately $16 a day.

Assuming that 27,000 gallons will cover one acre one inch deep, this plant would pump sufficient water in 24 hours to cover 370 acres one inch deep at a cost of 4 cents per acre. This plant is fortunately situated; the volume of water handled is large; consequently, the cost per acre for irrigating is low.

To approximate the cost of pumping water, I will say that it requires one horse-power and a consumption of one-eighth gallon of distillate oil—costing 10 cents per gallon—to raise 100 gallons of water per. minute to a height of 20 feet; and for greater or less heights the amount can be figured in even proportion. By figuring on a basis of 27,000 gallons to cover one acre one inch deep, the total cost of pumping the required amount of water from any depth can easily be calculated, though the number of inches put on the land will have to be determined by previous experience of what is required at that particular point. The cost of the machinery, including engine, pump, pipe and belts, depends upon so many different conditions that no approximate estimate could be made as to what the expense will be, except under specific conditions.

During the past two years, or thereabouts, our Works have turned out in the neighborhood of 4,000 horse-power, divided up into several hundred units, some as small as 2½ H. P., others as large as 100 H. P.; and of this total output slightly over 2,000 H. P. has been sold as motive power for pumping plants, which are distributed all over this State.

Our trade is constantly increasing, and we notice that each year the average size of our engines sold is larger than the previous year, which goes to prove that greater confidence is felt by power users in the internal combustion engine, as its economy and other points of advantage are more fully understood. We do not believe there is any section in this State, or in fact on the Coast, where gasoline engines for pumping are not in use to a greater or less extent, and careful investigation will show that where they are most in use the orchards and farms are in better condition, and the owners more prosperous, than in places where irrigation is not resorted to. We call special attention to the Santa Clara Valley where hundreds of thousands of dollars have been expended in irrigating plants, with splendid results. For the actual net gains to be derived from irrigation, we can do no more than refer you, if you desire, to a great many of our customers who have tried both ways, and can give you comparative figures.

We believe this subject is of vital interest and should receive the full attention required to place before the people accurate and exhaustive data. Regretting that this letter cannot embody more explicit and full information, owing to the brief time allowed for looking into the subject, but hoping it may be of some use, I am,

Very truly yours,

THEO. POINDEXTER, Pres.,
HERCULES GAS ENGINE WORKS, INC.

COST OF PUMPING.

Estimate by Mr. Wm. H. Mills.

Pumping with Gasoline Engine, 15 H. P.

Below 30 feet Elevation.—Capacity, 42,000 gallons per hour.

COST:	2 gallons gasoline @ 13 cents	$0.26
	Labor, $2.00 per 10 hours	0.20
	Total cost per hour	$0.46

Gasoline. 1,613 gallons water raised for 1 cent.
= 1 inch on $6\frac{45}{100}$ Trees 20 x 20 = 250 gallons.
= 16 cents per acre for oil.

Gasoline and Labor. 913 gallons water raised for 1 cent.
= 1 inch on $3\frac{65}{100}$ Trees.
= $29\frac{6}{10}$ cents per acre for gasoline and labor.

SHIPMENTS OF FRUIT OUT OF STATE BY RAIL IN 1898. TONS OF 2,000 POUNDS.

Place of Shipment.	Green Deciduous.	Citrus.	Dried.	Raisins.	Nuts.	Canned.	All Kinds.
Northern California.							
San Francisco	121.9	5.7	8,211.1	247.6	343.8	12,916.3	21,846.4
Oakland	2,928.0	.8	676.5	2.1	21.8	3,965.7	7,594.9
San Jose	16,870.5	....	31,030.8	10.3	35.4	4,913.9	52,860.9
Stockton	6,355.8	2,985.1	7,523.2	42,355.1	.5	2,931.5	62,151.2
Sacramento	36,626.1	303.1	14,203.5	1,218.5	76.7	4,735.5	57,163.4
Marysville	2,955.6	2,596.1	4,597.9	235.6	21.7	3,897.8	14,304.7
Total Tons	65,857.9	5,890.8	66,243.0	44,069.2	499.9	33,360.7	215,921.5
Total Carloads	6,585.8	589.1	6,624.3	4,406.9	50.0	3,336.1	21,592.2
Southern California.							
Los Angeles	182.3	107,738.9	4,527.2	605.8	3,956.4	5,931.3	122,941.9
Orange County	26.0	10,188.2	1,392.0	288.0	1,177.0	75.0	13,146.2
Riverside County	39.0	29,221.5	416.0	256.0	....	....	29,932.5
San Bernardino County	26.0	22,261.4	3,120.0	1,120.0	....	540.0	27,067.4
San Diego County	26.0	5,287.7	144.0	960.0	99.0	....	6,516.7
Total Tons	299.3	174,697.7	9,599.2	3,229.8	5,232.4	6,546.3	199,604.7
Total Carloads	29.9	17,469.8	959.9	323.0	523.2	654.6	19,960.5
Carloads from State	6,615.7	18,058.9	7,584.2	4,729.9	573.2	3,990.7	41,552.7
Carloads by Sea	357.5	7.0	82.1	49.7	8.4	1,231.3	1,735.9
Total Carloads by Sea and Rail	6,973.2	18,065.9	7,666.3	4,779.6	581.6	5,222.0	43,288.6

SHIPMENTS OUT OF THE STATE BY RAIL IN 1898 OF WINE, BRANDY AND VEGETABLES. TONS OF 2,000 POUNDS.

PLACE OF SHIPMENT.	Wine.	Brandy.	Wine and Brandy not segregated.	*Vegetables.
Northern California.				
San Francisco	36,188.5	1,435.0	....	5,413.9
Oakland	380.4	31.9	....	451.1
San Jose	4,354.5	24.6	....	920.8
Stockton	6,050.6	752.5	....	4,277.7
Sacramento	13,864.2	235.1	....	6,698.2
Marysville	1,001.4	381.2	....	194.5
Total tons	61,839.6	2,860.3	....	17,956.2
Southern California.				
Los Angeles	1,527.3	107.0	2,360.0	8,920.1
Orange County	....	....	20.0	3,475.5
Riverside County	....	....	....	52.5
San Bernardino County	....	....	420.0	52.5
San Diego County	....	....	20.0	....
Total tons	1,527.3	107.0	2,820.0	12,500.6
Total by rail from State	63,366.9	2,967.3	2,820.0	30,456.8
Total carloads by rail	6,336.7	296.7	282.0	3,045.6

* 1,893.0 tons canned vegetables included, 189.3 carloads.

SHIPMENT OUT OF STATE OF FRUITS AND VEGETABLES BY SEA IN 1898. TONS OF 2,000 POUNDS.

PLACE OF SHIPMENT.	Green Deciduous.	Citrus.	Dried.	Raisins.	Nuts.	Can'd.	*Vegetables.
San Francisco	3,575.0	70.4	820.5	497.3	83.5	12,312.7	8,014.3

* Contains 256.4 tons canned vegetables, 25.6 carloads.

SHIPMENTS OUT OF STATE OF WINE AND BRANDY BY SEA IN 1898. TONS OF 2,000 POUNDS.

PLACE OF SHIPMENT.	Wine.	Brandy.
San Francisco	20,571.0	415.5

GENERAL SUMMARY AND COMPARATIVE TABLES OF SHIPMENTS BY RAIL AND BY SEA, OF FRUITS, WINE, BRANDY AND VEGETABLES FOR NINE CONSECUTIVE YEARS. TONS OF 2,000 POUNDS.

KINDS.	1890	1891	1892	1893	1894	1895	1896	1897	1898
Green Deciduous	34,042.0	50,548.9	59,374.5	80,112.3	90,692.2	66,254.8	57,638.3	72,350.2	69,732.2
Citrus Fruits	34,209.6	46,921.4	34,857.5	80,757.0	58,964.0	115,825.5	99,156.0	98,547.0	180,658.9
Dried Fruits	32,297.5	32,919.0	29,762.2	45,386.2	51,828.2	61,386.4	48,522.8	75,159.7	76,662.7
Raisins	20,560.1	22,779.1	26,673.4	37,409.9	46,954.4	46,390.1	34,434.6	39,065.8	47,796.3
Nuts	787.1	1,358.9	2,061.9	1,796.5	3,953.5	3,234.7	4,972.6	5,808.6	5,815.8
Canned Fruits	40,060.9	32,395.0	55,273.7	31,626.3	60,352.6	41,395.5	45,546.9	73,464.7	52,219.7
Carloads Fruit by rail and by sea	16,195.7	18,692.2	20,800.3	27,708.8	31,274.4	33,547.2	29,026.7	36,439.6	43,288.6
Carloads Vegetables by rail	none reported	none reported	none reported	6,978.4	4,276.6	3,613.6	1,130.6	4,243.8	3,045.6
Carloads Vegetables by sea	none reported	none reported	none reported	none reported	410.0	40.0	487.7	490.8	801.4
Carloads Wine and Brandy by rail and sea	none reported	4,765.1	4,832.5	6,620.9	7,663.5	8,056.8	7,609.0	6,897.8	9,014.0
Carloads Fruit, Vegetables, Wine and Brandy by rail and sea	16,195.7	23,347.3	25,632.8	40,928.5	43,624.7	45,257.4	38,254.0	48,072.0	56,149.6

TABLE OF GAINS AND LOSSES, 1897 AND 1898 COMPARED. CARLOADS OF TEN TONS EACH.

Kinds.	1897.	1898.	Gain.	Loss.
Green Deciduous	7,235.0	6,973.2	....	261.8
Citrus Fruits	9,854.7	18,065.9	8,211.2	....
Dried Fruits	7,515.9	7,666.3	150.4	....
Raisins	3,906.5	4,779.6	873.1	....
Nuts	580.8	581.6	.8	....
Canned Fruits	7,346.4	5,222.0	....	2,124.4
Vegetables	4,734.6	3,847.0	....	888.6
Wines and Brandy	6,897.8	9,014.0	2,116.2	....
Totals	48,071.7	56,149.6	11,351.7	3,274.8
Net Gain, Carloads	....	....	8,076.9	......

Shipments of Orchard and Vineyard Products and Hops by Sea to Foreign Countries from the Port of San Francisco for the year 1898.

BRITISH AUSTRALASIA.

	Pounds.	*Gallons.*
Apples, green	816,120	......
" dried	500	......
runes	32,950	......
Raisins	314,958	......
Canned Fruit	2,778,740	......
Nuts	1,435	......
Hops	1,019,044	......
Brandy	....	16
Vegetables	3,726,248	......
Canned Vegetables	96,500	......
Wine	....	2,691

BRITISH COLUMBIA.

Apples, green	98,520	......
" dried	6,913	......
Prunes	133,150	......
Raisins	492,380	......
Canned Fruit	395,520	......
Oranges	14,095	......
Nuts	45,065	......
Fruit, not elsewhere specified	131,240	......
Hops	18,355	......
Brandy	....	18,355
Vegetables	4,144,531	......
" canned	149,900	......
Wine	....	161,700

British East Indies.

	Pounds.	*Gallons.*
Canned Fruit	114,360	......
Hops	83,872	......
Brandy	....	98
Vegetables	74,200	......
“ canned	3,750	......
Wine	....	4,382

China.

Apples, green	492,240	......
Prunes	3,450	......
Raisins	8,850	......
Canned Fruit	807,480	......
Nuts	6,467	......
Hops	42,276	......
Fruit, not elsewhere specified	19,784	......
Brandy	....	1,416
Vegetables	1,207,320	......
“ canned	91,550	......
Wine	....	36,678

Chili.

Fruits, not elsewhere specified	31,500	......
Canned Fruits	1,980	......
Prunes	2,000	......
Hops	3,700	......
Brandy	....	10
Vegetables	1,600	......
Wine	....	1,406

Colombia.

Fruit, not elsewhere specified	20,500	......
Canned Fruit	17,160	......
Raisins	2,760	......
Nuts	415	......
Hops	80	......
Vegetables	355,070	......
“ canned	1,450	......
Wine	....	41,623

Costa Rica.

Fruit, not elsewhere specified	36,800	......
Apples, green	11,520	......
Raisins	10,120	......
Canned Fruit	17,040	......
Nuts	4,550	......
Hops	9,115	......
Vegetables	458,415	......
“ canned	650	......
Wine	....	17,671

Dutch East Indies.

Canned Fruits	3,780	......
Wine	....	2,450

FRENCH OCEANICA.

	Pounds.	*Gallons.*
Fruits, not elsewhere specified	42,800	......
Apples, green	4,920	......
Prunes	1,075	......
Raisins	2,335	......
Canned Fruit	30,360	......
Nuts	1,620	......
Hops	140	......
Vegetables	393,521	......
" canned	9,450	......
Wine	....	44,734

ECUADOR.

Prunes	1,500	......
Raisins	6,000	......
Wine	....	13,054

GUATEMALA.

Fruit, not elsewhere specified	263,067	......
Apples, green	45,360	......
Prunes	9,300	......
Raisins	15,950	......
Canned Fruit	20,280	......
Nuts	5,320	......
Hops	13,817	......
Brandy	....	66
Vegetables	1,207,320	......
" canned	5,050	......
Wine	....	50,952

ENGLAND.

Fruit, not elsewhere specified	4,000	......
Canned Fruit	19,868,160	......
Hops	115,200	......
Brandy	....	7,449
Wine	....	120

GERMAN OCEANICA.

Apples	720	......
Canned Fruit	2,580	......
Vegetables	25,340	......
" canned	2,000	......

HONDURAS.

Fruit, not elsewhere specified	13,065	......
Canned Fruit	3,840	......
Raisins	900	......
Oranges	1,114	......
Brandy	....	487
Vegetables	31,403	......
" canned	600	......
Wine	....	8,918

JAPAN.

	Pounds.	*Gallons.*
Fruit, not specified elsewhere	1,234,000	......
Apples, green	118,200	......
Prunes	3,100	......
Raisins	48,450	.....
Canned Fruit	245,160	......
Nuts	4,585	......
Hops	13,618	......
Vegetables	1,238,145	......
" canned	51,100	......
Wine	....	72,633

MEXICO.

Fruits, not elsewhere specified	1,148,800	......
Apples, green	267,480	......
Prunes	7,250	......
Raisins	30,320	......
Canned Fruit	79,500	......
Nuts	23,100	......
Hops	1,073	......
Brandy	....	1,227
Vegetables	1,209,146	......
Vegetables, canned	37,800	......
Wine	....	176,543

PHILIPPINE ISLANDS.

Fruit, not elsewhere specified	20,800	......
Canned Fruits	14,460	......
Hops	1,497	......
Brandy	....	100
Vegetables	12,000	......
Wine	....	14,867

PORTUGUESE AFRICA.

Canned Fruit	6,120	......

NICARAGUA.

Fruits, not elsewhere specified	126,100	......
Apples, green	8,400	......
Canned Fruit	8,160	......
Raisins	1,520	......
Nuts	650	......
Brandy	....	131
Vegetables	189,919	......
Vegetables, canned	700	......
Wine	....	19,453

SALVADOR.

Brandy	....	20
Vegetables	880,590	......
" canned	1,650	......
Wine	....	39,221

TONGUA, SAMOA, ETC.

	Pounds.	*Gallons.*
Fruit, not elsewhere specified	52,000	......
Apples, green	6,720	......
Raisins	1,180	......
Canned Fruit	14,400	.....
Nuts	1,735	.....
Brandy	....	15
Vegetables	164,264	......
" canned	4,250	......
Wine	....	182

HAWAIIAN ISLANDS.

Fruits, not elsewhere specified	1,472,000	......
Apples, green	662,400	......
Prunes	62,345	......
Raisins	59,068	......
Canned Fruit	196,260	.....
Nuts	72,000	......
Oranges	125,600	......
Hops	9,643	......
Brandy	....	714
Vegetables	196,676	......
" Canned	56,350	.....
Wine	....	215,728

Totals.

	Pounds.	*Gallons.*	*Tons of 2,000 Lbs.*
Apples	2,532,600	......	1,266.3
Fruit, not elsewhere specified	4,616,456	......	2,308.7
Dried Fruit	263,533	......	131.8
Raisins	994,791	......	497.3
Canned Fruits	24,625,340	......	12,312.7
Nuts	166,942	......	83.5
Oranges	140,809	......	70.4
Hops	1,331,483	......	665.7
Vegetables	15,515,710	......	7,757.9
Canned Vegetables	512,850	......	256.4
Brandy	....	30,104	....
Wine	....	925,006	....

SHIPMENTS OF WINE FROM THE STATE BY SEA DURING 1898.
TONS OF 2,000 POUNDS.

To Eastern States.	Tons.	
Illinois	341.3	
Indiana	20.5	
Iowa	9.3	
Kentucky	10.0	
Massachusetts	49.4	
Minnesota	151.4	
Michigan	89.5	
Missouri	97.4	
Nebraska	7.6	
New York	15,000.3	
Ohio	366.0	
Pennsylvania	46.5	
Wisconsin	74.0	
Other States	8.0	
Totals		16,271.2
Foreign Countries.	Tons.	
Belgium	21.5	
British Columbia	125.5	
Central America	550.0	
China	126.0	
Ecuador	78.5	
England	820.3	
Germany	371.0	
Hawaiian Islands	856.0	
Japan	252.3	
Java	47.9	
Manila	48.5	
Mexico	664.3	
New Zealand	9.5	
Panama	175.0	
Tahiti	140.5	
Other Countries	13.0	
Totals		4,299.8
Grand Totals		20,571.0

BEET SUGAR PRODUCTS, 1888-1897.

Tons of 2,000 Pounds.

Year.	Watsonville.	Alvarado.	Chino.	Alamitos.	Crockett.	Total.
1888	1,452	458	Nil	Nil	Nil	1,910
1889	1,585	872	"	"	"	2,457
1890	2,128	1,403	"	"	"	3,351
1891	2,183	891	"	"	"	3,074
1892	5,634	1,253	"	"	"	6,887
1893	7,645	2,243	"	"	"	9,888
1894	11,935	2,955	3,725	"	"	18,615
1895	10,786	2,700	10,341	"	"	23,827
1896	19,185	4,679	7,951	"	"	31,815
1897	14,761	5,089	12,020	3,500	"	35,280
1898	7,166	3,700	6,063	300	857	17,229

WOOL PRODUCTION OF CALIFORNIA FROM 1854 TO DATE.

Compiled by CHAS. H. ABBOTT, ESQ.

Year.	Pounds.	Year.	Pounds.
1854	175,000	1877	53,110,742
1855	300,000	1878	40,862,091
1856	600,000	1879	46,903,360
1857	1,100,000	1880	46,074,154
1858	1,428,000	1881	45,076,639
1859	2,378,000	1882	40,529,119
1860	3,055,327	1883	40,848,690
1861	3,721,998	1884	37,415,330
1862	5,990,300	1885	36,561,390
1863	6,268,480	1886	38,509,160
1864	7,923,670	1887	31,564,231
1865	8,949,931	1888	32,569,972
1866	8,532,047	1889	34,008,370
1867	10,288,600	1890	34,854,640
1868	14,232,687	1891	33,183,475
1869	15,413,970	1892	35,802,930
1870	20,072,660	1893	33,169,375
1871	22,187,188	1894	36,968,400
1872	24,255,468	1895	35,856,690
1873	32,155,169	1896	27,195,550
1874	39,356,781	1897	34,882,325
1875	43,532,223	1898	28,063,240
1876	56,550,973		

THE MINERAL PRODUCTIONS OF CALIFORNIA FOR SEVEN YEARS.

Compiled by CHAS. G. YALE, Statistician.

Under Direction of A. S. COOPER, State Mineralogist.

	1891.		1892.		1893.		1894.		1895.		1896.	
	Quantity	Value.	Quantity	Value.	Quantity	Value.	Quantity	Value.	Quantity	Value.	Quantity	Value.
Antimony, tons	none	none	none	none	50	$ 2,250	150	$ 6,000	33	$ 1,485	17	$ 2,320
Asbestos, tons	66	$ 3,960	30	$ 1,830	50	2,500	50	2,250	25	1,000	none	none
Asphalt, tons	4,000	40,000	7,550	75,500	950	161,250	11,698	233,800	25,525	170,500	20,914	362,590
Bituminous rock, tons	39,962	154,164	24,000	72,000	32,000	192,036	31,214	115,193	38,921	121,586	49,456	122,500
Borax, pounds	8,533,337	640,000	11,050,495	838,787	7,910,563	593,292	11,540,099	807,807	11,918,000	595,900	13,508,000	675,400
Cement, barrels	5,000	15,000	5,000	15,000	none	none	8,000	21,600	16,383	32,556	9,500	28,250
Chrome, tons	1,372	20,580	1,500	22,500	3,319	49,785	3,680	39,980	1,740	16,795	786	7,775
Clay (brick), M	...	...	...	...	103,900	801,750	81,675	457,125	131,772	672,360	24,000	524,740
Clay (pottery), tons	100,000	50,000	100,000	50,000	24,855	67,284	28,475	35,073	37,660	39,685	41,907	62,900
Coal, tons	93,301	204,902	85,178	209,711	72,603	167,555	59,887	139,862	79,858	193,790	70,649	161,335
Copper, pounds	3,397,455	424,675	2,980,944	342,808	239,682	21,571	738,594	72,486	225,650	21,901	1,992,844	199,519
Gold	...	12,728,869	...	12,571,900	...	12,422,811	...	13,923,281	...	15,334,318	...	17,181,562
Granite	...	1,300,000	...	1,000,000	...	628,272	...	295,797	...	297,667	...	278,588
Gypsum, tons	2,000	20,000	2,000	20,000	1,620	14,280	2,446	24,584	5,158	51,014	1,310	12,580
Infusorial Earth, tons	none	none	none	none	50	2,000	51	2,040	none	none	none	none
Iron ore, tons	...	...	...	...	250	2,000	200	1,500	none	none	none	none
Lead, tons	570	49,020	680	54,400	333	24,975	475	28,500	796	49,364	646	38,805
Limestone and lime	...	300,000	...	300,000	...	301,276	...	337,975	...	457,784	...	332,617
Macadam, cu. yds	...	...	...	...	271,500	256,875	441,967	369,438	840,650	700,987	646,646	510,245
Magnesite, tons	1,500	15,000	1,500	15,000	1,093	10,930	1,440	10,240	2,200	17,000	1,500	11,000
Manganese, tons	705	3,830	300	3,000	270	4,050	523	5,512	880	8,200	518	3,415
Marble	...	100,000	...	115,000	...	40,000	...	98,326	...	56,566	...	32,415
Mineral paint, tons	22	880	25	750	590	26,795	610	14,140	750	8,425	395	5,540
Mineral water, gals.	334,553	135,959	331,875	162,019	383,179	190,667	402,275	184,481	701,397	291,500	808,843	337,434
Natural gas	...	30,000	...	55,000	...	68,500	...	79,072	...	112,000	...	114,457
Onyx and Travertine	...	2,400	...	1,800	...	27,000	...	20,000	...	12,000	...	24,000
Petroleum, barrels of 42½ gals.	323,600	401,264	385,049	561,333	470,179	608,092	783,078	1,064,521	1,245,339	1,000,235	1,257,780	1,180,793
Platinum, ozs	100	500	80	440	75	517	100	600	150	900	162	944
Quicksilver, flasks of 76½ lbs	22,904	1,036,386	27,993	1,139,600	30,164	1,108,527	30,416	934,000	36,104	1,337,131	30,765	1,075,449
Rubble, tons	...	...	...	...	99,600	199,200	219,933	295,400	414,038	394,952	313,973	329,639
Salt, tons	20,094	90,303	23,570	104,788	50,500	213,000	49,131	140,087	53,031	150,576	64,743	153,244
Sandstone	...	100,009	...	50,000	...	26,314	...	113,592	...	35,373	...	28,378
Serpentine, sup. ft.	...	...	...	...	...	...	...	...	4,000	4,000	1,500	6,000
Silver	...	953,157	...	463,602	...	537,157	...	297,332	...	599,789	...	422,464
Slate, squares	4,000	24,000	3,500	21,000	3,000	21,000	1,800	11,700	1,350	9,450	500	2,500
Soapstone, tons	...	...	...	...	400	17,750	none	none	25	375	none	none
Soda, tons	...	...	...	...	...	...	1,530	20,000	1,900	47,500	3,000	65,000
Tin, pounds	125,289	27,564	162,000	32,400	...	...	...	...	...	...	...	...
Total		18,872,413		18,300,168		18,811,261		20,203,294		22,844,664		24,291,398

	1897.	
	Quantity	Value.
Antimony, tons	25	$ 3,500
Asphalt, tons	22,697	404,350
Bituminous rock, tons	45,470	128,173
Borax, tons	8,000	1,080,000
Cement, barrels	18,000	66,000
Clay, (brick), M	97,468	563,240
Clay, (pottery), tons	24,592	30,290
Coal, tons	87,449	196,255
Copper, pounds	13,638,626	1,540,666
Gold	...	15,871,401
Granite, cu. ft	339,288	188,024
Gypsum, tons	2,200	19,250
Infusorial Earth, tons	5	200
Lead, pounds	596,000	20,264
Lime, barrels	287,800	252,900
Limestone, tons	36,796	38,556
Macadam, tons	487,911	313,087
Magnesite, tons	1,143	13,671
Manganese, tons	504	4,080
Marble, cu. ft.	4,102	7,280
Mineral paint, lbs.	1,155,280	8,165
Mineral waters, gallons	1,508,192	345,863
Natural gas, cu. ft.	63,920,000	62,657
Paving blocks, M.	1,711	35,235
Platinum, ozs	150	900
Petroleum, bbls	1,911,569	1,918,269
Quicksilver, flasks	26,648	993,445
Rubble, tons	333,212	287,025
Salt, tons	67,851	157,520
Sandstone, cu. ft.	77,000	24,086
Serpentine, cu. ft.	2,500	2,500
Silver	...	452,789
Slate, squares	400	2,800
Soda, tons	5,000	110,000
Total		25,142,441

Relative Rank of Mineral Product of Counties, 1897.

The relative rank of the counties of the State, in point of mineral productions, is given in the following table. In each case the value given includes that of all mineral substances combined produced in the respective counties for the year. Some counties produce in addition to gold and silver, five, six, or seven other substances, while other counties which yield little or no gold or silver produce in large quantities quicksilver, mineral oils, copper, lead, asphalt, structural materials, etc. The figures after the names of the counties indicate aggregate value of all mineral products for the year, including the precious metals. The term "undistributed" includes total values of such substances as are grouped to avoid disclosing private business, as in the case of single operations in a county.

Shasta	$2,224,706
Nevada	1,895,567
Tuolumne	1,811,268
Los Angeles	1,646,574
Placer	1,578,637
Calaveras	1,444,006
Amador	1,368,770
San Bernardino	1,312,780
Trinity	1,107,961
Kern	931.604
Siskiyou	842,157
El Dorado	685,312
Butte	680,010
San Diego	626,568
Mono	598,480
Napa	555,372
Santa Barbara	481,382
Mariposa	452,087
Sierra	370,254
Ventura	368,282
Plumas	339,953
Inyo	339,079
Alameda	303,330
Santa Clara	301,800
Humboldt	290,551
Santa Cruz	242,941
Lake	211,131
Sacramento	201,663
Riverside	188,022
San Benito	158,423
Yuba	141,638
Madera	124,427

Sonoma	120,797
San Francisco	114,717
Fresno	114,334
Contra Costa	106,380
Marin	96,200
San Joaquin	79,411
Lassen	49,950
San Mateo	40,000
Stanislaus	39,217
Solano	31,276
San Luis Obispo	28,016
Tulare	22,544
Del Norte	16,710
Orange	12,000
Colusa	3,290
Tehama	2,400
Monterey	2,200
Undistributed	438,264
Total	$25,142,441

In 1897 all the antimony produced in California was from Kern County. Asphaltum was produced in Kern and Santa Barbara counties; bituminous rock in Santa Cruz and San Luis Obispo. Brick clay in quantities was utilized in Alameda, Butte, Kern, Los Angeles, Marin, Sacramento, Santa Clara, San Joaquin, San Francisco and Shasta counties. The cement all came from San Bernardino. Clay for pottery was from Amador, Placer, Riverside, Sacramento and Solano counties. The coal was from Alameda, Amador, Contra Costa and Riverside counties; and the copper from Calaveras, Nevada and Shasta counties. The granite was produced from Madera, Nevada, Placer, Sacramento, San Luis Obispo, Solano and Tulare; gypsum from Los Angeles and San Benito; infusorial earth from Los Angeles; and lead from Inyo and Mono counties. The lime and limestone came from El Dorado, Kern, Mono, Monterey, San Benito, San Bernardino, Santa Cruz, Shasta, Solano and Tulare counties. Macadam was quarried in large quantities in Alameda, Los Angeles, Marin, Sacramento, San Benito, San Francisco, Solano and Sonoma counties. The magnesite was all from Napa County; manganese from Alameda; marble from Amador and San Luis Obispo; and mineral paint from Calaveras, Sonoma, Riverside and Stanislaus counties. Mineral waters were bottled and sold from Butte, Colusa, Contra Costa, Fresno, Humboldt, Lake, Monterey, Napa, Santa Barbara, San Benito, Santa Clara, San Diego, San Luis Obispo, Sonoma and Tehama counties. The natural gas is mainly from San Joaquin, though little is utilized in Santa Barbara County. Paving blocks are from Sacramento, Solano and Sonoma. The platinum is from Siskiyou and Del

Norte. Petroleum is from Fresno, Los Angeles, Orange, Santa Barbara, Santa Clara and Ventura counties. Rubble in quantities was quarried in Humboldt, Placer, San Diego, San Francisco, Sacramento, San Luis Obispo and San Mateo counties. Salt came from Alameda, Colusa, Riverside and San Diego; sandstone from Colusa and Yolo; serpentine from Los Angeles; slate from El Dorado and soda from Inyo. Many of these substances are found in other counties than those named but were only mined in 1897 in the counties stated. Only three counties produced as many as seven different mineral substances in 1897 and these were Los Angeles, Sacramento and San Luis Obispo.

As far as the largest production of different substances was concerned, the "banner counties" of 1897 were as follows: Alameda County leads in the production of manganese and salt; Amador in marble; Colusa, sandstone; Contra Costa, coal; El Dorado, slate; Humboldt, rubble; Inyo, lead and soda; Kern, antimony; Los Angeles, brick clay, gypsum, infusorial earth, serpentine and petroleum; Napa, magnesite, quicksilver and mineral waters; Nevada, gold; Riverside, pottery clay; Sacramento, granite; San Bernardino, borax and cement; San Francisco, macadam; San Joaquin, natural gas; Santa Barbara, asphaltum; Santa Cruz, bituminous rock, lime and limestone; Shasta, copper and silver; Siskiyou, platinum; Sonoma, mineral paint and paving blocks.

It is to be noted that only one county has the lead in five things—Los Angeles; two lead in three articles—Napa and Santa Cruz; and five in two—Alameda, Inyo, San Bernardino, Shasta and Sonoma.

Quicksilver was produced in Colusa, Lake, Napa, San Benito, Santa Clara, San Luis Obispo, Sonoma and Trinity counties.

HOP PRODUCTION FOR ELEVEN YEARS—1888—1898.

Compiled by Lilienthal & Co., of San Francisco.

YEAR	Bales	Pounds	YEAR	Bales	Pounds
1888	34,605	6,400,925	1894	67,500	12,287,500
1889	35,230	6,517,550	1895	52,000	9,620,000
1890	28,130	5,204,050	1896	35,000	6,475,000
1891	36,151	6,687,935	1897	45,000	8,325,000
1892	39,800	7,363,000	1898	44,000	8,140,000
1893	51,400	9,509,000			

Indications of low prices, cause of decrease in crop. Some Yards being abandoned permanently, others temporarily.

CLEARANCES BY SEA FROM SAN FRANCISCO.

Compiled from Reports of Produce Exchange.

YEAR	Flour Bbls.	Wheat Centals.	Oats Centals.	Corn Centals.	Barley Centals.	Rye Centals.
1887	994,959	12,311,161	....	....	726,969	....
1888	848,199	8,888,844	27,538	74,772	550,253	....
1889	879,184	13,418,254	30,769	19,770	952,408	....
1890	1,174,974	13,728,442	52,834	53,967	813,140	....
1891	1,181,872	13,939,629	16,624	130,544	336,269	....
1892	1,055,757	12,784,779	18,160	77,928	1,129,416	93,649
1893	1,084,561	10,551,674	20,035	69,884	1,894,330	66,548
1894	776,874	8,958,193	21,520	188,960	2,462,690	22
1895	922,384	9,598,623	16,970	76,966	699,958	12
1896	964,032	10,350,561	25,192	34,409	2,265,665	55,689
1897	1,119,103	10,092,012	32,338	63,571	3,660,177	166,501
1898	824,266	10,056,558	22,440	46,079	3,290,479	59

CALIFORNIA WHEAT CROP, INCLUDING FLOUR.

CROP YEAR.	Wheat, Tons.	CROP YEAR.	Wheat, Tons.
1886-87	1,069,719	1892-93	1,022,298
1887-88	865,794	1893-94	995,232
1888-89	932,154	1894-95	716,792
1889-90	1,258,747	1895-96	786,522
1890-91	944,484	1896-97	872,602
1891-92	1,054,772	1897-98	917,589

DAIRY STATISTICS.

Compiled by Wm. Vanderbilt, Secretary State Dairy Bureau.

Table No. 1.—Showing the amount of butter produced in counties by the creamery method and the old method for the years ending October 1, 1896, 1897 and 1898.

TABLE NO. 1.

Creamery Method 1896.	Old Method 1896.	Creamery Method 1897.	Old Method 1897.	Creamery Method 1898.	Old Method 1898.
10,097,323	21,508,117	10,866,646	17,811,793	10,410,479	13,280,549

Total productions for 1896, 31,605,440. Total productions for 1897, 28,678,439. Total productions for 1898, 23,691,028.

Table No. 2.—Showing the production of cheese for the years ending October 1, 1896, 1897 and 1898.

TABLE NO. 2.

1896.	1897.	1898.
6,383,130	6,399,625	5,148,372

Table No. 3.—Showing the value of the dairy industry of the State of California for the years ending October 1, 1897–1898.

1897.	
Value of 28,678,439 pounds of butter	$5,573,617
Value of 6,399,625 pounds of cheese	569,566
Value of milk and cream consumed	4,669,480
Value of calves from dairy cows	723,370
Value of hogs produced at creameries and dairies	915,330
Total value for 1897	$12,451,363
1898.	
Value of 23,691,321 pounds of butter	$4,354,238
Value of 5,148,372 pounds of cheese	535,430
Value of milk and cream consumed	4,712,280
Value of calves from dairy cows	562,630
Value of hogs produced at creameries and dairies	748,895
Total value for 1898	$10,913,473

FIFTY YEARS' RAINFALL.

(Read before the regular Monthly Meeting of the California State Board of Trade, Jan. 11, 1898.)

The Hon. E. W. Maslin, of San Francisco, has compiled a table showing the rainfall for forty-eight consecutive seasons. In forty-eight seasons there has fallen at Sacramento and San Francisco a total of 960.81 inches of rain, an average for each season of 20.01 inches. The total precipitation before January 1st of all the said forty-eight seasons was 480.15 inches, an average of 7.82 inches. This season's rainfall before January 1st is below the average, being only 4.07 inches. The figures up to and inclusive of 1889-90 were taken by Mr. Maslin from the reports of Drs. Logan and Hatch of the State Board of Health and the signal service at Sacramento; the remaining figures were furnished by the signal service of San Francisco. The rainfall at Sacramento is slightly in excess of that in San Francisco. Every sixth or seventh year appears to be deficient in rainfall. Following is the rainfall by seasons and the precipitation in each season prior to January 1st:

Season July 1 to June 30	Precipitation before Jan. 1	Total fall of rain	Season July 1 to June 30	Precipitation before Jan. 1	Total fall of rain
1849–50	16.50	36.00	1874–75	6.75	17.70
1850–51	none	4.71	1875–76	12.16	26.53
1851–52	10.39	17.98	1876–77	3.75	8.96
1852–53	19.41	36.36	1877–78	3.23	24.86
1853–54	3.04	20.06	1878–79	1.82	17.85
1854–55	2.81	18.62	1879–80	6.34	26.47
1855–56	2.75	13.76	1880–81	11.86	26.57
1856–57	3.25	10.46	1881–82	6.00	16.51
1857–58	5.70	15.00	1882–83	7.55	18.11
1858–59	7.50	16.03	1883–84	2.92	24.78
1859–60	8.33	22.09	1884–85	12.46	16.58
1860–61	5.43	16.10	1885–86	17.20	32.27
1861–62	10.81	35.56	1886–87	3.10	13.97
1862–63	2.69	11.58	1887–88	2.56	11.56
1863–64	3.31	7.87	1888–89	9.46	19.95
1864–65	14.71	22.51	1889–90	16.99	32.27
1865–66	3.35	17.93	1890–91	4.14	16.58
1866–67	11.94	25.30	1891–92	7.89	18.53
1867–68	16.67	32.79	1892–93	10.66	21.75
1868–69	3.38	16.64	1893–94	7.05	18.47
1869–70	4.93	13.57	1894–95	12.67	25.70
1870–71	1.57	8.47	1895–96	4.10	21.25
1871–72	12.02	23.65	1896–97	11.10	23.43
1872–73	7.54	14.21	1897–98	4.07	10.51
1873–74	11 53	22.90	1898–99	4.42	....

NOTE.—This table brought down to and including January 1, 1899.

COMPARATIVE TABLE OF THE TEMPERATURES AND RAINFALL FOR FIFTEEN YEARS.

Compiled from Official Records of the United States Weather Bureau at San Francisco.

	Red Bluff.				Sacramento.				Fresno.				Los Angeles.				San Francisco.			
	Mean.	Max.	Min.	Rain-fall.	Mean.	Max.	Min.	Rain-fall.	Mean.	Max.	Min.	Rain-fall.	Mean.	Max.	Min.	Rain-fall.	Mean.	Max.	Min.	Rain-fall.
1883	61.5	107.0	19.0	13.76	58.8	103.5	22.0	13.48	....	.....	....	.....	61.6	103.5	28.0	14.14	55.6	95.0	36.0	15.43
1884	60.8	107 0	22.0	28.06	58.8	100.0	21.0	34.92	....	.....	....	.....	60.8	101.5	33.7	40.39	56.7	83.0	35.0	38.82
1885	64.4	108.0	33.0	29.63	61.2	105.0	34.0	20.72	....	.....	....	.....	63.0	108.0	36.0	10.69	57.8	87.0	43.0	24.90
1886	63.2	109 0	30.0	17.21	58.8	105.0	27.0	18.17	....	.....	....	.....	61.1	98.0	32.0	17.20	57.3	94.0	41.0	20.02
1887	64.4	112.0	27.0	13.60	59.9	100.0	28.0	13.43	....	.....	....	.....	61.7	100.0	33.5	16.27	56.5	97.0	33.0	19.04
1888	64.3	109.0	18 0	24.94	60.6	108.0	19.0	18.46	64.4	111.0	20.0	8.76	60.7	99.0	31.0	24.24	57.03	93.0	29.0	23.03
1889	63.2	111.0	26.0	32.87	60.9	104.0	31.0	27.48	64.3	112.0	27.0	12.27	63.0	103.0	32.0	33.31	57.9	89.0	39.0	36.94
1890	61.5	110.0	22.0	25.50	59.4	102.0	27.0	20.93	62.6	111.0	24.0	8.36	63.6	105.0	30.0	12.69	53.3	86.0	36.0	23.13
1891	62.4	114.0	26.0	23.04	60.6	106.0	26.0	15.63	63.0	114.0	26.0	8.94	63.0	109.0	33.0	12.84	56.6	100.0	37.0	21.11
1892	62.2	108.0	28.0	33.48	60.2	106.0	26.0	23.60	63.1	112.0	27.0	8.75	61.6	99.0	33.0	18.72	56.0	92.0	38.0	22.08
1893	60.6	106.0	27.0	24.36	58.8	103.0	28.0	16.59	61.0	109.0	28.0	9.40	61.5	92.0	31.0	21.76	54.3	90.0	36.0	17.91
1894	62.0	110.0	27.0	26.98	60.3	108.0	26.0	22.61	62.6	109.0	25.0	12.48	60.3	99.0	32.0	24.54	55.0	94.0	36.0	24.52
1895	62.2	108.0	28.0	22.57	60.2	102.0	28.0	17.38	62.5	110.0	26.0	10.39	61.7	100.0	34.0	12.55	55.6	80.0	38.0	17.13
1896	62.5	109.0	26.0	28.16	60.7	104.0	28.0	25.06	63.7	111.0	28.0	11.02	63 1	103.0	35.0	11.80	55.9	91.0	33.0	28.25
1897	62.0	109.0	27.0	20.08	59.8	105.0	24.0	15.32	62.3	110.0	23.0	8.41	61.8	97.0	30.0	14.28	55.0	92.0	38.0	16.40
1898	62.0	112.0	24.0	12.86	59.6	110.0	26 0	10.04	63.0	114.0	24.0	4.98	62.5	99.0	31.0	4.83	54.6	89.0	36.0	9.31

NOTE.—Red Bluff, located in northern extremity of the Sacramento Valley; Sacramento, central of that valley; Fresno, central of San Joaquin Valley; San Francisco representing the coast region; Los Angeles representing Southern California.

COMPARATIVE WINTER TEMPERATURE

OF POINTS IN CALIFORNIA AND IN THE EAST ON THE SAME LINES OF LATITUDE.

	January, 1899.			February, 1899.		
	Mean.	*Max.*	*Min.*	*Mean.*	*Max.*	*Min.*
LATITUDE ABOUT 40° NORTH.						
Red Cluff, Cal.	42.4	65	24	51.6	79	26
Salt Lake, Utah.	20.6	48	- 3	29.6	51	- 10
Keokuk, Iowa	30.0	52	4	19.6	60	- 21
Columbus, Ohio	33.2	66	Zero.	22.9	60	- 20
Philadelphia, Penn.	35.4	58	12	28.1	57	- 6
Denver, Col.	29.2	63	- 3	17.6	56	- 22
LATITUDE ABOUT 38° 50′ NORTH.						
Sacramento, Cal.	42.0	59	26	51.5	80	30
Kansas City, Mo.	32.4	58	12	19.4	63	- 22
St. Louis, Mo.	37.3	63	10	24.1	66	- 16
Pueblo, Col.	26.5	67	- 11	18.6	60	- 27
Washington, D. C.	36.6	63	17	27.4	61	- 15
LATITUDE ABOUT 36° 50′ NORTH.						
Fresno, Cal.	41.7	64	24	51.2	76	24
Springfield, Mo.	37.7	62	12	23.0	66	- 29
Cairo, Ill.	41.6	70	12	27.0	68	- 14
LATITUDE ABOUT 34° NORTH.						
Los Angeles, Cal.	51.5	84	31	54.0	82	33
Little Rock, Ark.	46.0	72	19	33.0	67	- 12
Memphis, Tenn.	46.7	70	18	30.2	66	- 9
Wilmington, N. C.	50.4	76	18	43.4	74	5
Atlanta, Ga.	46.9	73	17	39.5	70	- 8
OTHER EASTERN POINTS.						
Jacksonville, Fla.	55.2	78	38	55.4	81	10
Tampa, Fla.	61.8	79	42	60.6	80	22
Galveston, Tex.	53.0	70	28	48.6	71	8
New Orleans, La.	53.4	75	29	49.4	79	7
Boston, Mass.	29.2	57	- 3	26.8	54	- 4
Chicago, Ill.	22.9	48	- 13	17.9	49	- 21

12th

ANNUAL REPORT

10

OF THE

California State Board of Trade

UPON THE INDUSTRIAL RESOURCES
OF THE STATE OF CALIFORNIA FOR

1901

BY

GEN. N. P. CHIPMAN

President and Chairman Committee of Industrial Resources of the State

SUBMITTED MARCH 11, 1902

"He that owns no land is no man."
—*The Talmud.*

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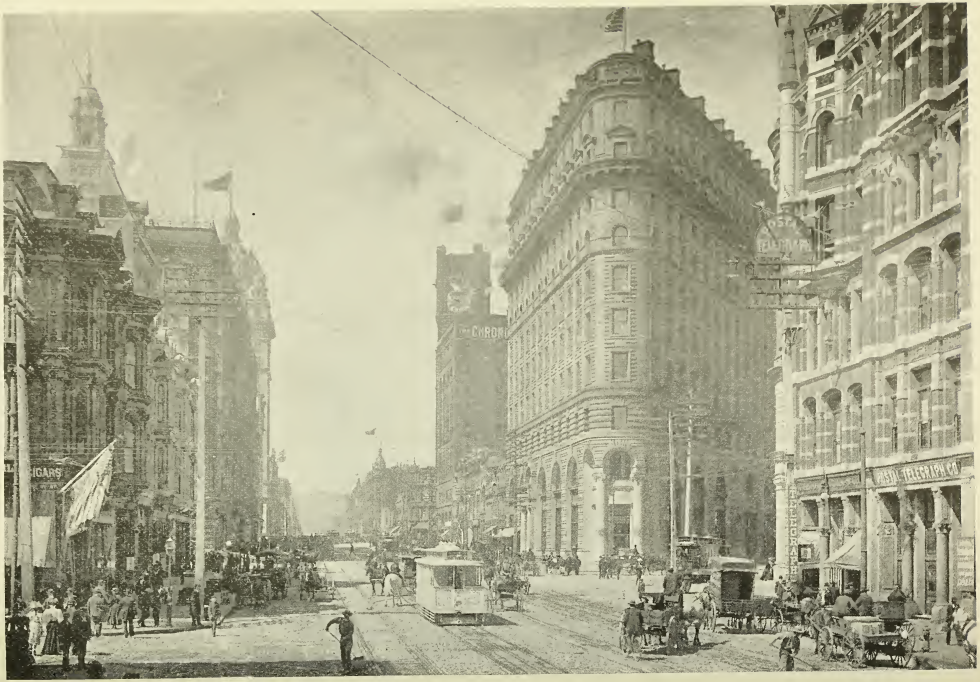


MARKET STREET, LOOKING WEST FROM MONTGOMERY AND POST.

REPORT FOR 1901.

TWELFTH ANNUAL REPORT

OF GENERAL N. P. CHIPMAN,

President California State Board of Trade.

To the Directors and Members California State Board of Trade—

The year 1901 is the twelfth year for which I have reported to this Board the shipments from the State of the leading products of the soil. The data can not be called in question, for the reason that the figures are obtained from the transportation companies and from Bills of Lading of business done by rail and by sea. I invite careful attention to the statistical tables hereto appended.

METHOD OF THE REPORTS

I have pursued in the present report the course marked out from the beginning—which was to give to the fruit, wine and grape brandy and vegetable industries the prominence which their influence in State development seemed to demand.

I have so stated the results that the tables show with certainty the regions of production. Obvious reasons seem to require that the shipments from counties south of the Tehachapi Mountains—called Southern California—should be given separately from shipments north of Tehachipi—called Northern California.

TERMINALS EXPLAINED

The railroad companies keep their books with terminal points only and hence it has been impossible for me to report individual counties. It is necessary to a correct understanding of the localities of production that these terminals should be given and the region embraced by each explained. In Southern California the reports are made from Los Angeles, Orange County, Riverside County, San Bernardino County, and San Diego County, and while all the shipments are accredited to one or other of these localities, they do not represent accurately the shipments from each, owing to the fact that the two railroad companies doing the business there do not pursue the same method of bookkeeping. It may be said, however, that these places mentioned in the statistical tables embrace all the shipments from Southern California. In Northern California there are the following terminals: San Francisco (representing reshipments of fruit from outlying counties, except the item of canned fruits, which are mainly put up in that city, but the fruit comes from the interior of Northern California), Oakland (which represents quite a large fruit district in Alameda County), San Jose (which is the terminal for the Santa Clara Valley and other regions thereabouts), Stockton (which represents the San Joaquin Valley and has credit for the large raisin shipments of Fresno County and the increased orange production of the counties of the Southern San Joaquin Valley), Sacramento (which is in the heart of the great Sacramento Valley and represents the region south of Marysville and on the west side of the Sacramento River), Marysville (which is the terminal for shipments north of that place as far as Shasta County, and embraces the orange shipments from Oroville, Palermo, and around Marysville). The intelligent reader with the map in his hand can fix with much certainty the localities of production of each of the products in the list of fruits (deciduous and citrus), dried and green, wines, brandy, nuts, raisins, and canned fruits and vegetables.

OTHER PRODUCTS AND STATISTICS

In recent years I have embraced in these reports the output of other products which contribute largely to the wealth and prosperity of our people, namely, beet-sugar, hops, dairy products, wool, lumber (redwood and pine separately stated); and the mineral products, which include petroleum, not separately, however, as I wish it could be.

FRUIT TREE PLANTING IN THE STATE

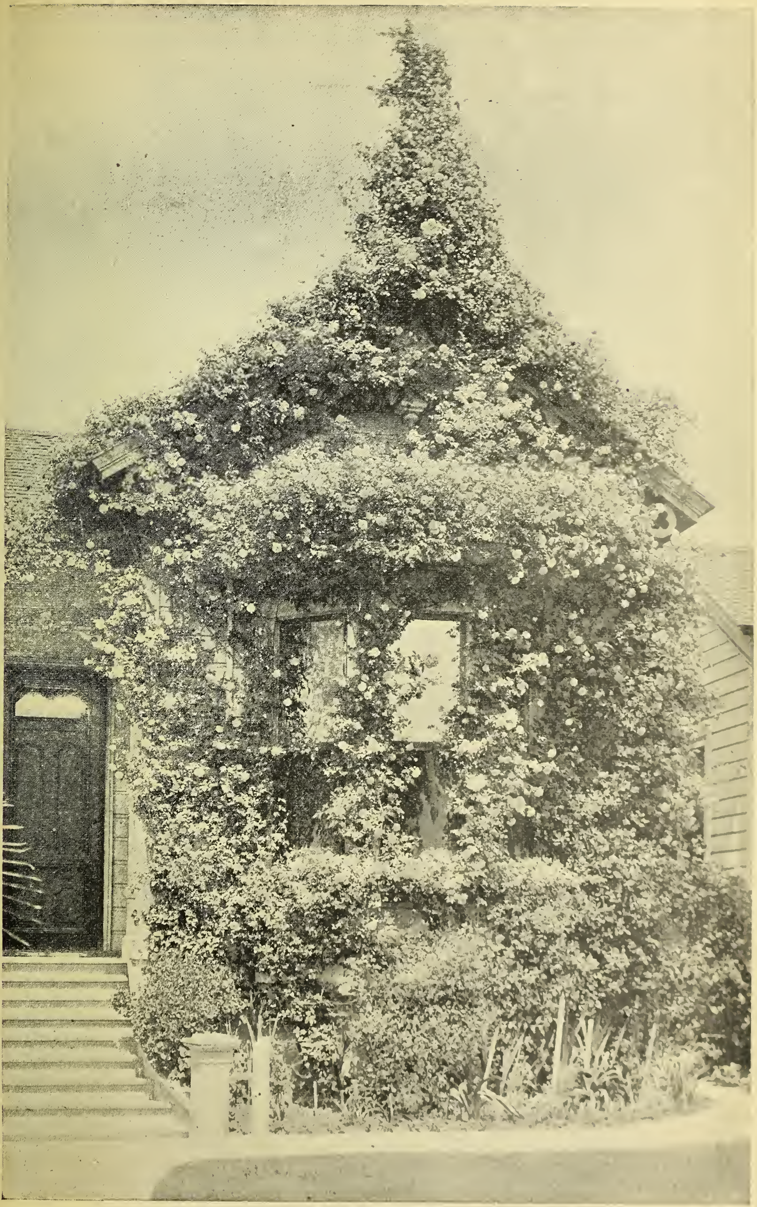
At my request our secretary has taken from the assessment roll the returns made by county assessors of bearing fruit trees and vines, subject to taxation, and non-bearing trees, not so subject. This is a valuable contribution to the report, although it is by no means an accurate statement, as many trees must necessarily escape. There are reported 23,380,439 bearing trees of about twenty classified fruits, and 7,619,095 non-bearing trees, a total of 30,985,404. Assuming 100 trees to the acre, we have 309,854 acres of fruit trees, and 210,810 acres of grapevines. I am satisfied that the acreage of fruit trees is much greater than reported.

Kind of Fruit.	Number of Trees in Bearing.	Number of Trees, Non-Bearing.
Apples	1,586,241	534,354
Almond	1,160,750	278,622
Apricot	2,305,277	386,002
Cherry	409,325	116,409
Fig	149,360	46,338
*Grape (acres)	187,200	23,610
Lemons	805,263	504,622
Lime	1,220	....
Nectarine	1,147	105
Orange	3,137,308	1,843,200
Olive	590,543	571,480
Peach	4,681,455	1,401,881
Pear	1,343,543	333,210
Plum	265	330
Pomelo	9,600	12,425
French Prune	6,249,955	1,132,287
Prunes	625,205	246,287
Quince	1,425	105
Walnut	326,547	185,503
Miscellaneous	5,490	2,325
Total	23,389,919	7,595,485
Total, all kinds		30,985,404

*Not included in totals.

FRUIT TREES PROOF OF CLIMATE

As indicating climatic conditions and the fruit-growing counties of the State, the table of fruit-tree planting is an unmistakable witness. The thermometer tells the truth, but it does not necessarily tell the whole truth. The Weather Bureau of the government has kept the record in many parts of the State for many years, and it is within the truth to say that the records of this Bureau show no substantial or practical climatic difference between Southern California and the Northern California valleys and the coast region. The tree planting is the proof of this. I need not go greatly into detail. In Butte County the assessor reported 327,890 orange trees planted. This county is in the Sacramento Valley, five or six hundred miles north of Los Angeles. In Tulare County the assessor reported 501,551 orange trees growing, and this county is in the San Joaquin Valley. Fresno County, in the same valley, reported 38,300. In the foot-hills of



ROSE-COVERED COTTAGE IN CALIFORNIA—CHRISTMAS.

Placer, in the north, are 31,975, and in Sacramento County, 41,000; in Yuba County, 71,960. Other northern counties have plantings, but this is sufficient to show how widely extended are the possibilities of this culture in California. The northern counties ripen the fruit earlier, and much of it for this reason is consumed in the home market, and yet the north in 1901 sent out of the State 2,089 car-loads of oranges, of quality equal to any produced in the State. I quote from Bulletin No. 23, Miscellaneous Service, Department of Agriculture, 1901, as follows:—

"Much of the land of the State is especially adapted to the cultivation of citrus fruits, and while by far the greater portion of the commercial crop of the State is at present grown in Southern California, fruit of this character can be safely and profitably grown along the foot-hills of the Sierra Nevada Mountains, from San Diego to Tehama County, a distance of over 700 miles. This area is known as the Thermal Belt, and varies in width from three to thirty miles. Strange to say, the mean summer temperature in this belt is higher in the northern part than in the southern, but in the winter the mean temperature is higher in the southern than in the northern section. The mean temperature, however, does not vary more than four degrees throughout the whole belt."

There has been a Citrus Fair recently held at Cloverdale, Sonoma County, which attested the entire practicability of growing oranges for profit in that part of the State. In Sonoma County alone there are now 1,200 acres of oranges, and the orchard area is increasing.

I will mention but one other tree as indicating climate, namely, the olive. In twenty counties, from Shasta to Kern, there are reported 583,041 olive trees growing, and this is more than half reported for the State. Several northern counties report olive trees not included in the above total. In Butte County there are 103,000 reported, and in Tehama County, 97,962.

Upon the subject of the climate of the two regions of the State I invite attention to a chart issued by the Weather Bureau U. S. Department of Agriculture, in the Annual Summary for 1901. This chart shows the mean annual isotherms and prevailing winds in the State. The chart has been kindly furnished by Mr. A. G. McAdie, section director, with some explanation of its meaning.

SOME DEDUCTIONS FROM THE STATISTICAL TABLES

A clear understanding of what the tables of statistics show will be reached by making some deductions from them.

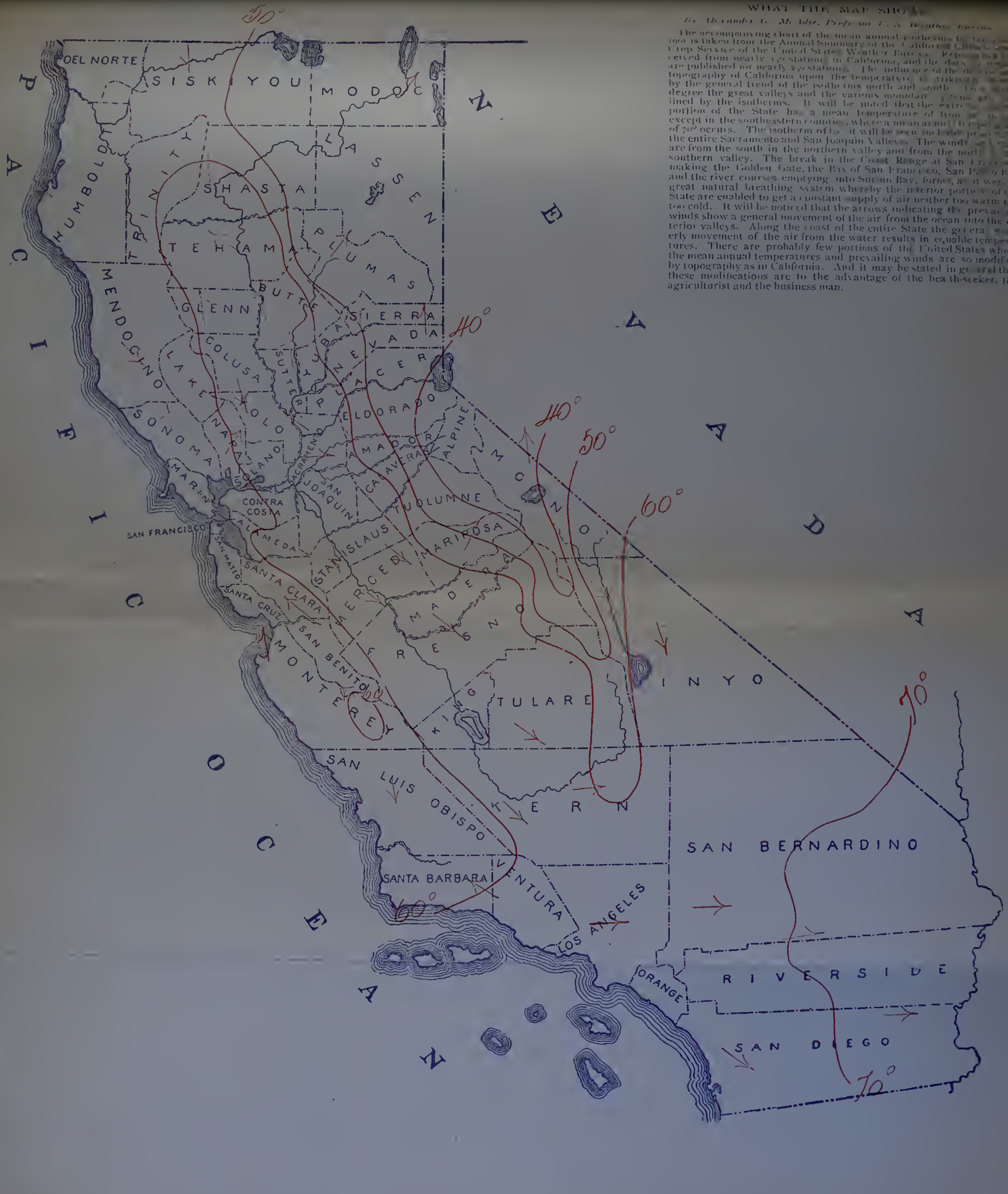
THE FROST SCARE OF 1901

will still be remembered; and some localities in the State suffered severely. But the topography of our country is so varied and the conditions existing even in contiguous neighborhoods are so different that when we come to sum up the year's production the loss becomes only personal to individuals, while the State, as a whole, seems not to have felt the blight. For example, adjoining the town of Chico on the north there was but little fruit on the large orchard of the General Bidwell ranch, while south of and near the town an unusually large crop of peaches and prunes was gathered. This is one of the many remarkable characteristics of California. The frost alarm was not unlike the alarm felt in Southern California because of the light rain-fall. When the water failed to descend from the clouds the people began to bore into the earth, and the result was a greater water supply than ever before and over a greater area. Nature seems to have so adjusted her compensations here that nothing can impede our progress. Let the figures illustrate. We made a gain in 1901 over 1900 as follows, omitting fractions: Green deciduous fruits, 249 car-loads of ten tons each; citrus fruits, a gain of 9,732 car-

WHAT THE MAP SHOWS

By Alexander G. McAdie, Professor U. S. Weather Bureau

The accompanying chart of the mean annual isotherms for the year 1901 is taken from the Annual Summary of the California Climate and Crop Service of the United States Weather Bureau. Reports are received from nearly 350 stations in California, and the data [illegible] are published for nearly 250 stations. The influence of the diversified topography of California upon the temperature is strikingly shown by the general trend of the isotherms north and south. To a large degree the great valleys and the various mountain systems are outlined by the isotherms. It will be noted that the extreme [illegible] portion of the State has a mean temperature of from 40° to [illegible] except in the southeastern counties, where a mean annual temperature of 70° occurs. The isotherm of 60° it will be seen includes practically the entire Sacramento and San Joaquin Valleys. The winds [illegible] are from the south in the northern valley and from the north [illegible] southern valley. The break in the Coast Range at San Francisco, making the Golden Gate, the Bay of San Francisco, San Pablo Bay and the river courses emptying into Suisun Bay, forms, as it were, a great natural breathing system whereby the interior portions of the State are enabled to get a constant supply of air neither too warm nor too cold. It will be noticed that the arrows indicating the prevailing winds show a general movement of the air from the ocean into the interior valleys. Along the coast of the entire State the general westerly movement of the air from the water results in equable temperatures. There are probably few portions of the United States where the mean annual temperatures and prevailing winds are so modified by topography as in California. And it may be stated in general that these modifications are to the advantage of the health-seeker, the agriculturist and the business man.



NUMBER AND VARIETY OF FRUIT TREES AND GRAPEVINES BY COUNTIES (AS RETURNED BY LOCAL ASSESSORS).

County.	Apple.	Almond.	Apricot.	Cherry.	Fig.	*Grapes. (Acres.)	Lemon.	Lime.	Nectarine.	Orange.	Olive.	Peach.	Pear.	Plum.	Pomelo.	Prune. (French.)	Prune. (Other kinds.)	Quince.	Walnut.	Miscellaneous.	Total Bearing.	Total Non-bearing.
Alameda	55,500	90,000	110,000	98,500	100	7,000	1,200			2,200	5,300	85,000	70,200			168,000	20,500		2,300		606,600	102,20
Alpine	1,306			50									150				200				1,351	325
Amador	5,615	2,357	1,554	504	490	254	5			240	17	13,560	4,869			13,237			77		38,995	3,53
Butte	8,175		14,450	9,600	9,320			1,220		327,890	103,000	125,000	20,425			75,200	8,115		965		651,270	52,09
Calaveras	10,000	1,500	3,000	700	600		100			700	7,000	5,000	600			400	900		700		22,150	9,0
Colusa	4,520	14,200	70,475	1,300	5,000	548	600			1,750	1,200	50,000	35,200			125,000	3,100				170,875	141,47
Contra Costa	11,550	186,300	51,950	11,710	3,435	3,525	480			1,465	24,600	33,515	81,900			32,760	7,950		4,425		353,285	98,755
Del Norte	8,450			345								50	900				1,300				10,250	795
El Dorado	34,810	22,870	2,650	5,320	1,760	1,550	210			1,865	2,100	147,500	95,100			27,110	10,540		620		282,415	70,04
Fresno	25,060	5,800	88,500	1,500	36,900	75,755	13,300			38,300	51,220	592,500	125,040			25,550	13,555		3,430		643,321	377,334
Glenn	9,000	5,000	15,000	1,000	9,000		2,500			8,000	1,000	20,000	15,000			40,000	5,000					130,5
Humboldt	35,000			2,000								1,500	2,500			3,000	3,000				47,000	
Inyo	18,770	40	650	690	50	117						6,200	2,550			2,115	2,625		400		33,180	910
Kern	10,000	1,200	20,500	1,650	1,000	1,100	300			3,500	4,700	35,000	15,000			75,000	1,000		50		163,750	5,150
Kings	2,200		21,780			6,350						210,030	43,700			94,120	11,905			7,815	374,135	17,415
Lake	18,965	5,825	1,610	755	1,660	700				50	2,365	14,870	19,830			58,320	2,750		800		127,800	
Lassen	39,650	36	224	652								721	1,003			940	736		208		44,170	
Los Angeles	43,895	88,350	106,905	1,230	4,390	3,415	198,630			852,665	186,580	125,765	18,995	595	2,025	61,560			141,150		1,163,915	668,820
Madera	835	836	5,780	10	6,394	58	1,441			186	1,160	24,790	2,120			3,244			35		46,831	
Marin	19,800	185	7,400	495	250	435	40			400		5,050					2,885		95		32,670	3,93
Mariposa	35,000	600	700	500	1,000	600	3,000			500	9,000	6,000	3,000			1,500	300		400		61,600	
Mendocino	99,323	1,051	512	535	83	2,910	1,290				265	22,284	8,441			78,097	3,221		198		162,592	52,708
Merced	2,470	11,250	10,527	1,370	6,718	2,943	1,500			3,900	26,019	70,600	8,500			22,200	2,830	150	765		128,577	40,222
Modoc	13,196		433	725								409	763			224	929		51		16,730	
Mono																						
Monterey	300,210	690	7,200	210		17						960	1,400			17,200					327,870	
Napa	64,730	53,820	14,175	16,260	1,890	3,000	400			3,130	4,740	115,060	63,560			177,455	33,300		10,840		403,895	205,465
Nevada	40,700	875	4,400	2,300	1,150	520	350			650	450	10,600	26,500			1,800	200		1,600		88,700	2,875
Orange	14,734		133,296		2,700	850	77,328			359,048	43,935	43,984	5,130			37,165			168,260		528,760	356,82
Placer	31,725	5,650	15,590	19,525	6,170	1,305	990			31,975	46,940	1,144,090	124,895			21,500	115,425		2,200		915,570	651,105
Plumas	5,250			100								700	1,200								5,050	2,200
Riverside	3,673	13,676	74,995	1,091	2,183	322	85,731			1,153,541	61,675	32,303	17,065			50,962			2,465		1,037,012	462,348
Sacramento	7,200	63,000	64,000	14,350	3,900	14,860	2,250			41,000	17,050	165,000	125,000			78,000	109,000		3,500		347,050	346,200
San Benito	9,500	7,000	18,000	3,000	200	187			250	100	300	18,000	15,350			79,810	6,300		1,900		142,110	17,660
San Bernardino	13,500	3,500	63,000	11,000	4,500	14,500	160,000			1,350,000	21,500	79,000	6,000			30,000			4,000		1,076,000	670,000
San Diego	40,000	19,500	74,200	5,500	27,500	5,575	420,000			120,000	122,500	140,000	30,500		20,000	110,000	10,000		20,500		512,000	648,200
San Francisco																						
San Joaquin	2,385	167,069	99,083	7,726	7,250	5,267	721			2,768	24,852	93,832	19,766			63,909	26,340		1,293		392,246	124,77
San Luis Obispo	76,600	5,100	57,300	10,600	3,140	2,840	18,100			4,260	3,380	112,000	44,300			189,200	53,300		28,050		466,320	139,01
San Mateo	23,800	500	11,020	1,350	100	335	110			108	7,500	1,200	4,000			30,000			600		72,528	7,820
Santa Barbara	25,620	1,840	15,390				149,300			2,250	34,200	8,425	2,345			1,865	2,380		28,115		149,460	122,27
Santa Clara	21,995	19,275	545,075	153,500	2,130	8,457	999		1,002	1,558	15,690	542,530	139,030			3,926,320	86,115	1,380	11,465		4,922,539	545,525
Santa Cruz	556,085	468	64,999	22,255	438	1,628	135			216	4,324	22,495	24,515			183,091	25,749		5,996		551,189	359,577
Shasta	12,823	7,379	516	572	1,026	400				28	11,427	40,788	9,473			54,798	6,305		265		133,011	12,389
Sierra	7,200		20	200								400	200						25		8,045	
Siskiyou																						
Solano	2,020	97,300	308,610	37,980	5,300	1,138	280			1,260	3,360	308,720	203,250			255,990	98,400		650		1,323,210	
Sonoma	41,480	2,650	17,360	43,200	2,020	14,810	940			5,030	43,920	33,615	56,280			516,240	45,020		4,910		720,815	293,35
Stanislaus	58	43	151		44	317	12			65	131	238	47			185			150		870	251
Sutter	1,830	35,474	12,005	3,595	2,541	607	68			197	2,100	147,435	21,907			41,472	2,550		1,045		259,650	16,7
Tehama	18,850	61,070	57,105	5,190	10,915	3,594	382			6,252	97,962	697,410	58,400			88,820	19,000		5,405		849,655	277,106
Trinity	7,500	5	50	450	7	10						1,475	545			1,055	440		100		6,897	4,73
Tulare	27,045	3,500	57,150	700	7,447	3,240	64,592			501,551	7,931	387,992	24,069			385,658	54,332		600		1,080,559	442,017
Tuolumne	8,670	350	2,810	3,370	1,165	2,265	210			465	45	12,010	2,515				445		1,695		23,020	10,73
Ventura	30,872	12,908	341,679	700	2,382	296	95,601			66,485	85,380	43,970	5,800			85,380			47,507		818,664	
Yolo	350	412,000	75,000	8,200	3,900	16,900	1,400			12,000	16,500	183,000	48,000			25,000	70,000				855,350	
Yuba	8,100	7,180	21,600	11,600	6,650	370	5,390			71,960	8,675	100,760	19,925			21,790	3,550		2,245		201,190	88,235
	2,120,595	1,430,372	2,091,279	525,734	195,098	210,810	1,309,885	1,220	1,252	4,980,508	1,162,023	6,083,336	1,676,753	595	22,025	7,382,242	871,492	1,530	512,050	7,815	23,402,727	7,582,677

* Not included in totals.

loads; dried fruits, 1,693 car-loads; raisins, 726 car-loads; nuts, 194 car-loads; canned fruits, 767 car-loads; vegetables, 4,032 car-loads. Wine and brandy alone fell off 462 car-loads. In 1900 we shipped out of the State of all these products 66,067 car-loads. In 1901 we shipped 83,731 car-loads, a net gain of 16,934 car-loads. It is a significant fact that we gained in this one year more than the entire output of the State in 1890, when I made my first report. To be exact, we shipped in 1890, 16,195 car-loads, showing that we gained in 1901 over the preceding year 739 car-loads more than the entire output of 1890.

It may interest the reader to know what the U. S. Weather Bureau has observed in some illustrative points, also the sunshine and rainfall of California. The following table is compiled from the Annual Summary, California Section, for 1901:—

Stations.	Rainy Days.	Sky.			Temperature.		Rainfall. Inches.
		Clear Days.	Partly Cloudy Days.	Cloudy Days.	Highest Degrees	Lowest.	
Northern California.							
Red Bluff	66	233	64	68	111	25	25.51
Oroville	61	170	22	173	115	24	29.58
Marysville	46	238	0	127	107	30	22.13
Sacramento	53	209	81	75	105	26	18.52
Stockton	48	243	108	14	102	22	14.74
Fresno	43	227	77	61	110	27	8.07
San Francisco	58	174	109	82	91	37	19.75
Southern California.							
Los Angeles	32	126	206	33	97	31	11.96
San Diego	38	262	58	45	96	35	9.39
San Bernardino	43	198	123	44	110	18	12.08
Colton	22	294	13	58	109	27	10.21
Redlands	31	234	78	53	107	26	9.17

REMARKABLE AND STEADY GROWTH

If you will turn to the table of comparative shipments for these twelve years, you will discover a steady and unbroken growth from year to year in almost every individual product—the gain on the combined products of the orchard, vineyard, and garden being 67,536 car-loads, or a gain of 516 per cent in eleven years.

Unlike the fruit regions of the eastern and southern States, with which we compete in some lines, though in others we have no competitors, we have never suffered entire loss of any one product—indeed hardly any loss is noticeable. This fact has great significance, for it proclaims the persistence, certainty, and continuity of our products; it fulfills the prophesy of Horace Greeley, who with marvelous prevision declared in 1859 "that California is destined to become the orchard of America." If it were not for California the people of this country would have to look to other lands for their oranges and lemons, their raisins and almonds and walnuts and olives and high-grade wines and brandies, and, indeed, I might add some other of our fruit products. It was reported early in the season that Southern California had lost her valuable citrus crop. Behold she comes forward with 30,298 car-loads, showing a gain of 8,480 car-loads over the shipments for 1900.

DISTRIBUTION OF PRODUCTS

The tables bring out the following results as to the products of Northern and Southern California from orchards, vineyards, and gardens, shipped out of the State.

GRAZING HERD IN DECEMBER ON A FOOT-HILL PASTURE, CONTRA COSTA COUNTY.

	Northern California.	Southern California.
	Car-loads, 10 tons each.	Car-loads, 10 tons each.
Green deciduous fruits	9,344	23
Dried	10,114	585
Raisins	4,172	160
Canned fruits	7,692	630
Nuts	190	656
Citrus	2,088	30,298
Wine and brandy	8,475	129
Vegetables	6,375	2,798
Total	48,450	35,279

From this table it will be seen that the fruit crop of Southern California is almost exclusively citrus fruits.

The returns of the beet-sugar factories are complete, except the factory at Crockett. We have the figures from the Spreckels, Alvarado, Union (Crockett estimated the same as 1900), in Northern California, 30,686 short tons, and Chino, Oxnard, and Alamitos, in Southern California, 29,343 short tons.

The hop industry, as reported, is confined to Northern California, and so also is largely the dairy industry.

The shipments or clearances of wheat, flour, oats, barley, corn, and rye, are all from San Francisco. Land is devoted to higher uses in Southern California, although considerable grain is produced there.

About 600,000,000 feet of lumber are produced in Northern California; there are no lumber industries south of the Tehachapi Mountains.

The growing of vegetables in Southern California as well as in the north is an industry of much local importance. In the single article alone of celery the county of Orange is said to ship to the east nearly one thousand car-loads annually. Through the asparagus industry along the Sacramento River in Northern California, our State is receiving widespread notice.

The distribution of mineral wealth is shown by counties. Omitting petroleum, the great mineral deposits of the State are in the Sierras and Coast Range of Northern California. Some gold and silver and other of the precious metals are found in the south, but in no great quantity. Recent discoveries also have located the most remarkable petroleum measures in the north—notably Kern County. The total mineral output of the State for 1900 was $32,612,942, an increase of nearly two million dollars over 1889. The returns for 1901 are not yet available, except approximately, and I do not give them. They will show a large increase, especially in copper and petroleum.[1]

COMPARISONS NOT INVIDIOUS

The above comparisons are given in no invidious spirit, but with a view of bringing out the exact truth for the benefit of home-seekers. The entire people of this State are proud of the wonderful development and consequent prosperity of Southern California. The county of Los Angeles has loyally retained its membership with this Board ever since its organization. But no one who loves the State and desires that it shall prosper throughout its entire borders can find fault with such an organization as this one is, if it should make all legitimate use of the facts to correct false impressions which tend to retard and belittle one part of the State and exalt another part of it. It is beyond dispute that, despite all previous efforts of this Board and of kindred organizations, in the northern part of the State, there is still much ignorance of the wonderful natural resources of this portion of California. The persistent and commendable energy and local pride and loyalty to their own region of the people of the south have created the impression abroad that the California of poetry and romance; the California of sunshine and fruits and flowers; the California of sublime and inspiring scenery; the California where the physical comforts of living find their best expression, exists only south of the Tehachapi Mountains and surrounds Los Angeles, Riverside, and San Diego.

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[1] The San Francisco Chamber of Commerce reports the petroleum output for 1901 as 8,754,500 barrels, which is double the product for 1900.

I would not divert one single person from settling in that charming region; I would not speak a single word in disparagement of any claims it has, and they are many, as a place of residence; indeed, I often wish I had the happiness to be of their number. But I would have the world know that California is greater than a small part of it; that there are attractions and advantages and resources in other parts of the State, of which the thousands who are looking this way as yet know but little, and know that little doubtingly.

DUTY TOWARD NORTHERN CALIFORNIA

And this brings me to a recommendation which has long been on my mind to make to this Board, but which the recent awakening in the north has seemed to make especially appropriate at this time. I think it is the duty of this Board to address its energies especially to the development of Northern California, and to that end that we offer cooperation in every possible way with the effort now being made for organized work to people this vast and rich country.

I would tender to the leading spirits of the new movement the entire working machinery and exhibit of this Board, together with the services of its officers, directors, and employees. If it is thought desirable by the San Francisco Chamber of Commerce and the Sacramento Valley and San Joaquin Valley Development Associations and Santa Clara Improvement Club to make this Board its executive agent, to promote the objects now being so seriously considered, I would enter at once enthusiastically upon this the most important enterprise now confronting Northern California. If my recommendation meets with approval I suggest that it be at once communicated to these bodies above indicated for their consideration.

DRIFT OF POPULATION

The average increase of population in the State for the last decade, as shown by the census of 1900, was 22.9 per cent. The tables show unmistakably the need for greater effort to induce population in the part of the State to which I have alluded. I have compiled from the *Census Bulletin* the following tables:—

SACRAMENTO VALLEY.

County.	Gain.	Loss.	Per Cent.
Sacramento	5,576	....	13.8
Placer	685	....	4.5
Yuba	....	1,016	10.5
Sutter	417	....	7.6
Butte	....	822	4.5
Tehama	1,080	....	10.8
Shasta	5 185	....	42.7
Colusa }[1] Glenn }	....	2,126	14.5
Yolo	934	....	7.3
Solano	3,197	....	15.2
Total	17,074	3.964	

[1] Divided in 1892.

SAN JOAQUIN VALLEY.

County.	Gain.	Loss.	Per Cent.
San Joaquin	6,823	....	23.8
Stanislaus	....	490	4.8
Merced	2,130	....	13.9
Madera Fresno [1]	12,200	....	38
Kings Tulare [2]	3,672	....	15
Kern	6,672	....	68
Total	20,497	490	

[1] Divided in 1893. [2] Divided in 1893.

It is apparent that there is need for missionary work in these great valleys. It should be observed that the large increase in Kern County is due to the Randsburg mining district and to the oil development; the increase in agricultural population has been small. So in Shasta County the increase is due to the opening up of large copper mines and to lumber operations and not to increased agricultural population.

OTHER NORTHERN COUNTIES.

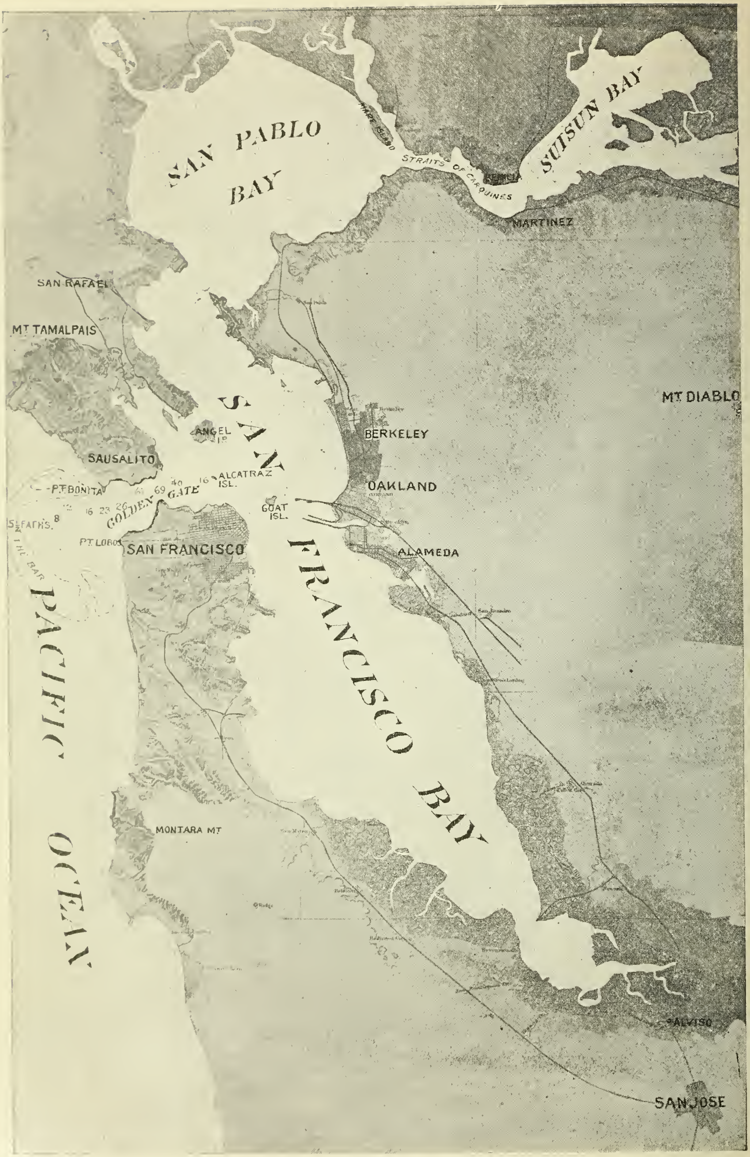
County.	Gain.	Loss	Per Cent.
Alameda	36,333	....	38.7
Calaveras	2,318	....	26.0
Contra Costa	4,531	....	33.5
Humboldt	3,635	....	15.4
Lake		1,084	15.2
Marin	2,630	....	20.1
Mendocino	2,853		16.1
Monterey[2]	743	....	3.9
Napa[1]	40	....	0.2
Santa Clara	12,211	......	25.4
Santa Cruz	2,242	....	11.6
Sonoma	5,759	....	17.6
San Francisco	43,785	....	14.6
Total	....	....	....

[1] Napa County has a population of 16,451, and increased but 40 in 10 years.
[2] Monterey County has a population of 19,380, and increased but 743.

SOUTHERN CALIFORNIA COUNTIES.

County.	Gain.	Loss.	Per Cent.
Los Angeles	68,844	....	67.8
Orange	6,107	....	44.9
Santa Barbara	3,180	....	20.1
Riverside San Bernardino San Diego [1]	20,432	....	33.7
Ventura	4,296	......	42.6
Total	102 859	....	

[1] Riverside organized from parts of San Diego and San Bernardino in 1893



THE TIDAL RESERVOIR OF THE GOLDEN GATE.

ORIGIN, PURPOSES, AND WORK OF THE BOARD

I had thought at this time to review the work of the Board since its organization, not only to show that its existence has been fully justified, but also to recall the processes of evolution through which our State's industries have passed since our first meeting, Aug. 2, 1887, when we became a voluntary association. Other matters, however, seem to have called for attention and I have not space to do more than indicate in brief outline what I had intended.

We became a corporation, under the laws of the State, Feb. 20, 1890, with the declared objects, to establish and maintain at San Francisco an exhibit of the agricultural and other resources of the State; to promote immigration; to publish and circulate information descriptive of the growth and products of the State; to circulate for counties, having membership in the Board, local descriptive literature; and generally to advance the material interests of the State by any appropriate means. Our revenue is derived exclusively from subscriptions to membership by counties, individuals, from firms and corporations. We have held meetings for discussion, self-education, the determination of plans for the betterment of the State, and to work out the objects of the Board, once every month (and sometimes oftener) during all these years. We began early the formation of a permanent exhibit, and by 1890 had installed a display of the State's horticultural industries, especially, every way worthy. This exhibit has been enlarged and made more diversified from year to year until it is now of great magnitude and exceedingly beautiful and instructive. It is our purpose to still further enlarge and diversify and make it more representative. It is visited daily by hundreds of people from other States, who show great interest in studying its meaning, and localizing the products, with a view to visit the regions of production. We have endeavored to have always on hand literature descriptive of the entire State and also separate pamphlets descriptive of counties and individual localities. This literature is taken away by visitors and is also sent broadcast to inquirers in other States. At exhibitions attended by the Board in foreign countries and in this country, thousands of these illustrative documents have found their way into the hands of the reading public. Of course, it is not possible to trace immediate results from exhibition work or from the dissemination of descriptive literature. But we have the best evidence that our labor has not been in vain from the hundreds of letters received from all parts of the United States, making all sorts of practical inquiries, which the writers say have been inspired by pamphlets and other forms of literature we have sent out. It is the persistency of this kind of work that finally succeeds; the law of intelligent advertising of merchandise, or any business, is the law which governs here. Our correspondence is very large and consists of personal letters giving specific information concerning the State and particular localities. I am myself obliged to write many letters as the result of my name being attached to our reports as the author, although our purpose is to confine inquiries to the Secretary and Manager. My habit, however, is, when addressed personally, to answer personally.

In the matter of conducting exhibits of the resources and products of the State at expositions and in other States, our work has been very extensive and has been followed, we feel assured, by valuable results. Our exhibit at Hamburg, in Germany, for example, resulted in large orders, which have been steadily increasing to German countries, and our joint exhibit with the Southern Pacific Company at Paris brought immediate and visible returns in the way of orders, particularly for wine and wood.

Probably nothing ever done for the State did more to attract attention to it than the two successive excursions called "California on Wheels," in 1889 and 1890, conducted by this Board. During the second excursion it was claimed that 500,000 visitors were entertained. This was the first effort of this kind made in the United States, and the spectacular and unique feature of the show, not to speak of its audacity, was the talk of the whole country.

That Northern California derived less benefit from these efforts than it should is attributable to the apathy of the people themselves and to the fact that in Southern California every intelligent advantage was taken to make all this stir about California focalize in that region. How well they succeeded, the wonderful prosperity of Southern California fully attests.

The seed has been sown, however, that may be made to germinate and bring forth rich results for Northern California, if the people will come forward now and show themselves ready for the harvest.

At Buffalo, where the Board and the Railroad Company again made a joint exhibit, Los Angeles, with her customary independence, as she has always done in the matter of State exhibits, installed her own exhibit, but this time immediately alongside of the State exhibit, and fortunately it became possible to point out side by side the same products from the north as are grown in the south, and many products which the south does not grow. Hundreds of observing people remarked the fact and confessed to surprise that the exhibits showed like climatic conditions in both regions.

Los Angeles, with her usual enterprise, is already preparing to show to the world at St. Louis, in 1903, regardless of what the State or the north may do, that the homeseeker may look no further than to that charming region.

It remains to be seen whether other parts of the State will be heard from at an Exposition which may be made to mean more to California than all others that have preceded it.

In conclusion, I beg to thank the officers and members of the Board for their cooperation in the work of the past year, and to express the hope that the awakening in Northern California, now observable, may not prove to be a spasm of merely transitory and ephemeral enthusiasm.

Respectfully submitted,

N P Chipman

Appendix

SHIPMENTS OF FRUIT OUT OF STATE BY RAIL, IN 1901.

Showing terminal points of shipment. Tons of 2,000 pounds.

Place of Shipment.	Green Deciduous.	Citrus.	Dried.	Raisins.	Nuts	Canned.	All kinds.
Northern California.							
San Francisco	277.4	41.8	8,873.1	187.1	569.9	19,273.9	29,223.2
Oakland	2,029.2	.1	1,506.5	.2	24.5	6,332.6	9,893.1
San Jose	22,555.3	.1	41,944.6	8.0	476.6	6,889.3	71,873.9
Stockton	9,429.7	13,545.3	18,411.4	34,898.1	110.1	5,318.5	81,713.1
Sacramento	53,229.0	662.4	16,576.4	641.3	567.7	6,841.6	78,518.4
Marysville	2,207.3	4,225.8	8,708.0	79.7	121.9	3,987.9	19,330.6
Interior points not designated	573.0	2,317.1	3,635.0	5,679.0	....	1,150.1	13,354.6
Total tons	90,300.9	20,792.6	99,655.0	41,493.4	1,870.7	49,793.9	303,906.5
Total car-loads, ten tons ea.	9,030.1	2,079.3	9,965.5	4,149.3	187.1	4,979.4	30,390.7
Southern California.							
Los Angeles	175.3	183,294.3	4,098.8	562.1	5,227.1	4,864.4	198,222.0
Orange County	14.4	17,985.2	205.7	45.4	1,327.8	510.0	20,088.5
Riverside County	13.0	47,984.6	284.5	21.2	....	....	48,303.3
San Bernardino County	26.9	43,299.5	1,192.7	430.1	10.3	927.8	45,887.3
San Diego County	....	10,423.5	67.8	538.1	....	....	11,029.4
Total tons	229.6	302,987.1	5,849.5	1,596.9	6,565.2	6,302.2	323,530.5
Total car-loads, ten tons ea.	23.0	30,298.7	585.0	159.7	656.5	630.2	32,353.1
Total car-loads by rail	9,053.1	32,378.0	10,550.5	4,309.0	843.6	5,609.6	62,743.8
Total car-loads by sea	314.3	9.2	148.2	22.4	2.6	2,713.3	3,210.0
Total car-loads from State by rail and sea	9,367.4	32,387.2	10,698.7	4,331.4	846.2	8,322.9	65,953.9

SHIPMENTS OF FRUIT OUT OF STATE BY SEA, IN 1901.

Tons of 2,000 pounds.

Place of Shipment.	Green Deciduous.	Citrus.	Dried.	Raisins.	Nuts	Canned.	All kinds.
San Francisco	3,143.2	91.7	1,482.6	223.7	26.5	27,133.0	32,100.7
Total tons	3,143.2	91.7	1,482.6	223.7	26.5	27,133.0	32,100.7
Total car-loads	314.3	9.2	148.2	22.4	2.6	2,713.3	3,210.0

A CALIFORNIA VINEYARD.

SHIPMENTS OF WINE AND BRANDY OUT OF STATE BY RAIL, IN 1901.

Tons of 2,000 pounds.

Place of Shipment.	Wine.	Brandy.	Wine and Brandy not Segregated.
Northern California.			
San Francisco	25 616.9	1,746.3	3,208.4
Oakland	936.0	15.8	....
San Jose	1,184.3	143.0	....
Stockton	6,838.6	1.237.1	....
Sacramento	11,221.4	379.9	....
Marysville	1,623.0	95.3	....
Other points not designated	....	......	739.7
Total tons	47,420.2	3.617.4	3,948.1
Total car-loads, ten tons each	4.742.0	361.7	394.8
Southern California.			
Los Angeles	1,150.4	17.1	....
Orange County	....	....	3.4
Riverside County	....	....	....
San Bernardino County	....	.. ..	122.9
San Diego County	....	......	1.7
Total tons	1,150.4	17.1	128.0
Total car-loads, ten tons each	115.0	1 7	12.8
Total car-loads by rail from State	4,857.0	363.4	407.6
Total car-loads by sea from State	2 944.7	32.6	......
Total car-loads from State	7,801.7	396.0	407.6

SHIPMENTS OF WINE AND BRANDY OUT OF STATE BY SEA, IN 1901.

Tons of 2,000 pounds.

Place of Shipment.	Wine.	Brandy.
San Francisco	29,447.0	326.4
Total tons	29,447.0	326.4
Total car-loads, ten tons each	2,944.7	32.6

SHIPMENTS OF WINE OUT OF STATE BY SEA, IN 1901.

Tons of 2,000 pounds.

To Eastern States.		To Foreign Countries	
New York	25,256	British Columbia	202.3
		Central America	930.0
		China	321.3
		England	720.4
		Germany	20.1
		Japan	432.5
		Mexico	726.0
		Panama	170.3
		Philippines	276.0
		South America	126.9
		Tahiti	223.4
		Other countries	32.3
		Total	4,191.5

SHIPMENTS OF VEGETABLES OUT OF STATE BY RAIL, IN 1901.

Tons of 2,000 pounds.

Place of Shipment.	Green Vegetables.	Canned Vegetables.	Place of Shipment.	Green Vegetables.	Canned Vegetables.
Northern California.			Southern California.		
San Francisco	20,442.8	555.8	Los Angeles	26,397.3	231.5
Oakland	784.1	3,230.2	Orange County	1,199.7	....
San Jose	982.1	1,432.2	Riverside County	7.9	....
Stockton	11,567.3	40.8	San Bernardino County	132.7	....
Sacramento	9,794.8	1,972.5	San Diego County	15.0	....
Marysville	339.5	....			
Other points not design'ted	4,591.8	......	Total tons	27,752.6	231.5
Total tons	48,502.4	7,231.5	Total car-loads, ten tons each	2,775.3	23.1
Total car-loads, ten tons each	4,850.2	723.1			
Total car-loads by rail				7,625.5	746.2
Total car-loads by sea				783.2	17.9
Total car-loads from State				8,408.7	764.1

SHIPMENTS OF VEGETABLES OUT OF STATE BY SEA, IN 1901.

Tons of 2,000 pounds.

Place of Shipment.	Green Vegetables.	Canned Vegetables.
San Francisco	7,832 4	179.8
Total tons	7,832.4	179.8
Total car-loads, ten tons each	783.2	17.9

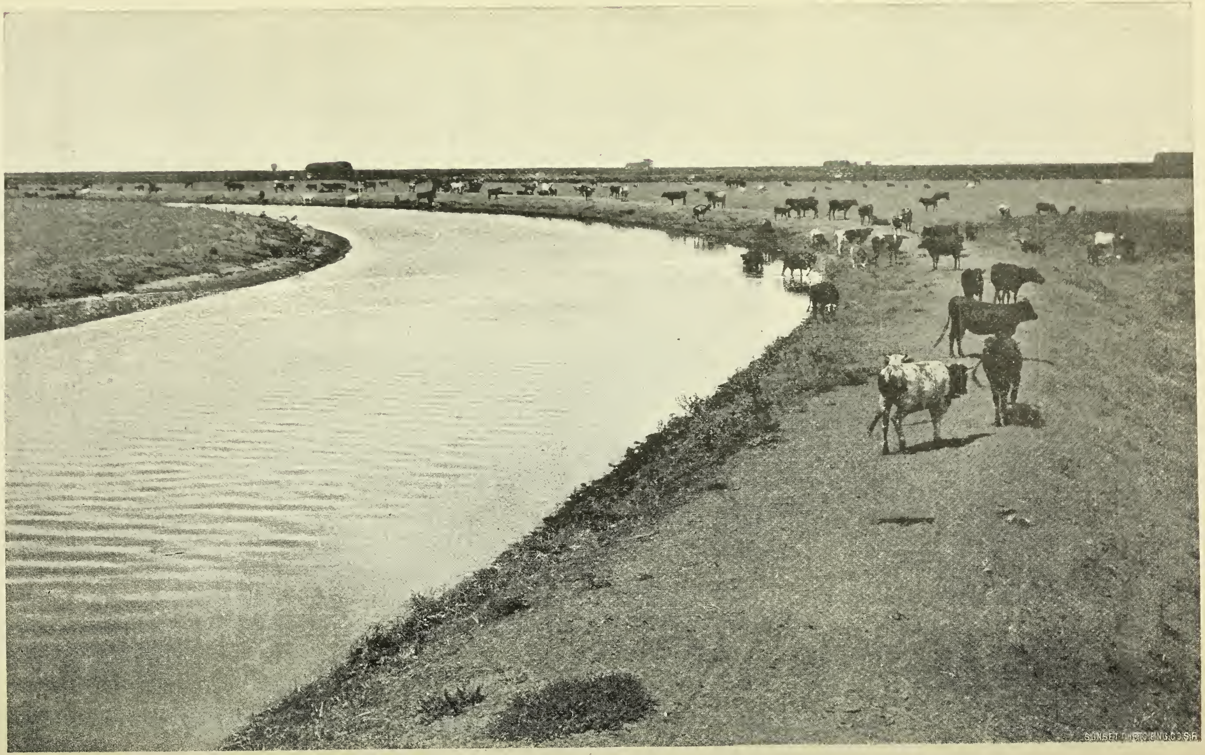
TABLE OF GAIN AND LOSSES, 1900 AND 1901, COMPARED.

Car-loads of ten tons each.

Kinds.	1900	1901	Gain.	Loss.
Green Deciduous	9,117.7	9 367.4	249.7	....
Citrus Fruits	22 654.6	32,387.2	9,732.6	....
Dried Fruits	9 005.4	10,698.7	1,693.3	....
Raisins	3 604.6	4,331.4	726.8	....
Nuts	651.9	846.2	194.3	....
Canned Fruits	7,555.6	8,322.9	767.3	....
Vegetables	5,140.7	9,172.8	4,032.1	....
Wines and Brandy	9,067.3	8,605.3	....	462.0
Total	66,797.8	83,731.9	17,396.1	462.0
Net gain			16,934.1	....

GENERAL SUMMARY AND COMPARATIVE TABLES OF SHIPMENTS OUT OF STATE, BY RAIL AND BY SEA, OF FRUITS, WINE, BRANDY, AND VEGETABLES FOR TWELVE CONSECUTIVE YEARS. TONS OF 2,000 POUNDS.

Kinds.	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901
Green Deciduous	34,042.0	50,548 9	59.374.5	80,112.3	90,692.2	66,254 8	57,638.3	72,350 2	69,732.2	96,943.6	91,176.5	93,673.7
Citrus Fruits	34,209.6	46,921.4	34,857.5	80,757.0	58,964.0	115,825.5	99,156.0	98 547.0	180,658.9	131,916.8	226,546.6	323 871.4
Dried Fruits	32,297.5	32,919.0	29,762.2	45,386.2	51,828.2	61,386.4	48,522.8	75,159.7	76,662.7	86,925.3	90,052.8	106 987.1
Raisins	20,560.1	22,779.1	26,673.4	37,409.9	46,954.4	46,390.1	34,434.6	39,065.8	47,796.3	36,008.7	36,047.0	43 314.0
Nuts	787.1	1,358.9	2 061.9	1,796.5	3,953.5	3,234.7	4,972.6	5,808.6	5,815.8	6,608.4	6,518.4	8,462.4
Canned Fruits	40,060.9	32,395.0	55,273.7	31,626.3	60,352.6	41,395.5	45,546.9	73,464.7	52,219.7	75,240.0	75,556.9	83,229.1
Car-loads Fruit, by rail and by sea	16,195.7	18,692.2	20,800.3	27,708.8	31,274.4	33,547.2	29,026.7	36,439.6	43,288.6	43,364.3	52,901.5	65,953.8
Car-loads Vegetables, by rail	none reported	none reported	none reported	6,978.4	4,276.6	3,613.6	1,130.6	4,243.8	3,045.6	2,613.6	4,367.8	8,371.7
Car-loads Vegetables, by sea	none reported	none reported	none reported	none reported	410.0	40.0	487.7	490.8	801.4	790.7	772.9	801.1
Car-loads Wine and Brandy, by rail and sea	none reported	4,765.1	4,832.5	6,620.9	7,663.5	8,056.8	7,609.0	6,897.8	9,014.0	8,713.9	9,067.3	8 605 3
Car-loads Fruit, Vegetables, Wine, and Brandy, by rail and sea	16,195.7	23,347.3	25,632.8	40,928.5	43,624.7	45,257.4	38,254.0	48,072.0	56,149.6	55,482.5	66,797.8	83,731.9



IRRIGATING CANAL, KERN COUNTY.

SUNSET PHOTO.ENG.CO.S.F.

DAIRY STATISTICS.

Compiled by the State Dairy Bureau.

Table No. 1.—Showing the number of pounds of butter produced in the State by the Creamery method and the old method for six years ending October 1, 1901.

Year.	Creamery Method.	Old Method	Totals.
1896	10 097,323	21,508,117	31,605,440
1897	10,866,646	17,811,793	28,678,439
1898	10,410,479	13,280,549	23.691,028
1899	12,725,814	12,143,270	24.869,084
1900	16.486.695	12,296 164	28 782,859
1901	19,017,512	10,713,370	29,730,882

Table No. 2.—Showing the production of cheese, in pounds, for the years ending 1896, 1897, 1898, 1899, 1900, and 1901.

1896	1897	1898	1899	1900	1901
6.383 130	6.399 625	5.148 372	5,294,938	4.989,960	5,679 566

BEET SUGAR PRODUCTS—1888-1901.

Tons of 2,000 pounds.

	Northern California.					Southern California.			Grand Total.
Year.	Watsonville	Spreckels.	Alvarado.	Crockett.	Union.	Chino.	Oxnard.	Alamitos.	
1888	1,452	Nil	458	Nil	Nil	Nil	Nil	Nil	1,910
1889	1,585	“	872	“	“	“	“	“	2,457
1890	2,128	“	1,403	“	“	“	“	“	3,351
1891	2,183	“	891	“	“	“	“	“	3,074
1892	5 634	“	1,253	“	“	“	“	“	6,887
1893	7,645	“	2,243	“	“	“	“	“	9,888
1894	11,935	“	2,955	“	“	3,725	“	“	18,615
1895	10,786	“	2,700	“	“	10,341	“	“	23,827
1896	19,185	“	4,679	“	“	7,951	“	“	31,815
1897	14,761	“	5,089	“	“	12,020	“	3,500	35,280
1898	7,166	“	3,700	857	“	6,063	“	300	18,086
1899	Nil	20,000	3,704	1,158	1,262	6,483	8.393	1,100	42,100
1900	“	12,500	4,186	1,329	1,896	Nil	9,695	713	30,319
1901	“	28,700	7,159	No report	3,498	2,451	20,892	6,000	68,700

HOP PRODUCTION FOR FOURTEEN YEARS—1888-1901.

Compiled by **Lilienthal & Co.**, of San Francisco.

Year	Bales.	Pounds.	Year.	Bales.	Pounds.
1888	34,6[illegible]5	6,400,925	1895	52,000	9,020,000
1889	35.230	6,517,550	1896	35,000	6,475,000
1890	28,130	5,204,050	1897	45,000	8,325,000
1891	36,151	6,687.935	1898	44,000	8,140,000
1892	39,800	7,363,000	1899	59,000	11,210,000
1893	51.400	9,509,000	1900	38,000	7,220,000
1894	67,500	12,287,500	1901	48,000	9,120,000

CALIFORNIA WHEAT CROP, INCLUDING FLOUR FOR 15 YEARS—1886-1901.

Crop Year.	Wheat, Tons.	Crop Year	Wheat, Tons.
1886-87	1,069,719	1894-95	716,792
1887-88	865,794	1895-96	786,522
1888-89	932,154	1896-97	872,602
1889-90	1,258,747	1897-98	917,589
1890-91	944,484	1898-99	367,061
1891-92	1,054,772	1899-00	973,102
1892-93	1,022,298	1900-01	611,536
1893-94	995 232		

CLEARANCES BY SEA FROM SAN FRANCISCO—1887-1901.

Compiled from Reports of Produce Exchange.

Year.	Flour, Barrels.	Wheat, Centals.	Oats, Centals.	Corn, Centals.	Barley, Centals.	Rye, Centals.
1887	994.959	12,311,161	....	....	26,969	....
1888	848.199	8,888,844	27,538	74,772	550,253	....
1889	879,184	13,418,254	30,769	19,770	952,408	....
1890	1,174.974	13,728,442	52,834	53,967	813,140	....
1891	1,181,872	13,939,629	16,624	130,544	336,269	....
1892	1,055,757	12,784.779	18,160	77,928	1,129,416	93,649
1893	1,084,561	10,551,674	20,035	69,884	1,894,330	66,548
1894	776,874	8,958,193	21,520	188,960	2,462,690	22
1895	922,384	9,598,623	16,970	76,966	699,958	12
1896	964,032	10,350,561	25,192	34,409	2,265,665	55,689
1897	1,119,103	10,092,012	32,338	63,571	3,660,177	166,501
1898	824,266	10,056,558	22,440	46,079	3,290,479	59
1899	1,009,416	2,285,862	23,905	23,339	461,333	....
1900	1,195,783	6,519,771	220,795	20,220	*4,251,236	54,215
1901	1,091,684	7,990 186	125,449	4,266	2,119,292	117,710

*Includes 248,100 centals by rail.

WOOL PRODUCTION OF CALIFORNIA FROM 1854 TO DATE.

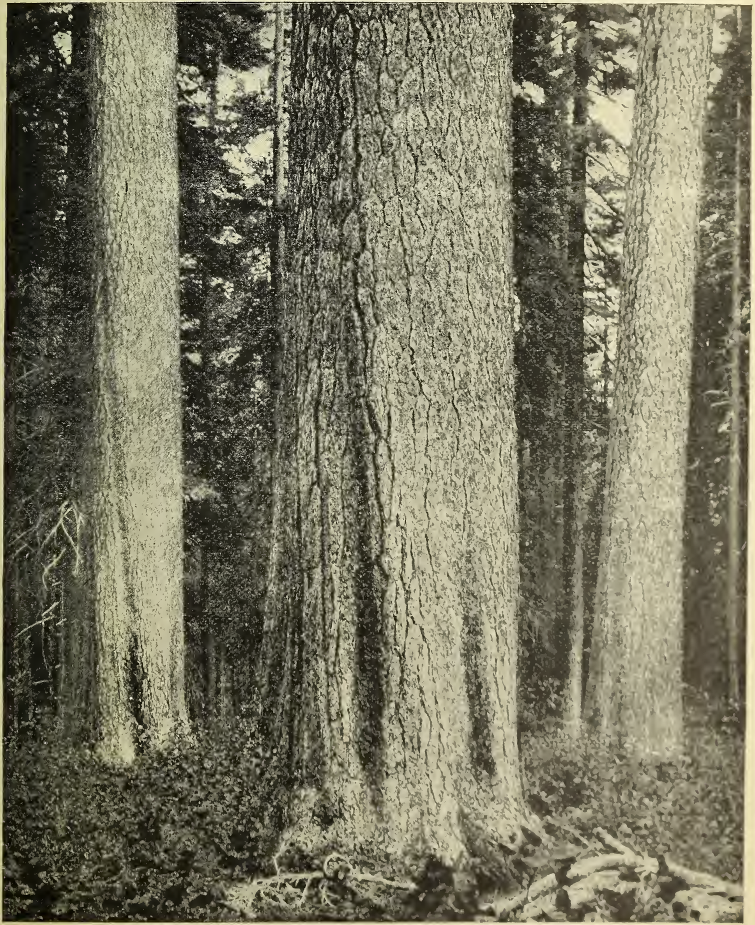
Compiled by Chas. H. Abbott, Esq.

Year.	Pounds	Year.	Pounds.	Year.	Pounds.
1854	175,000	1870	20,072,660	1886	38,509,160
1855	300,000	1871	22,187,188	1887	31,564,231
1856	600,000	1872	24,255,468	1888	32,569,972
1857	1,100,000	1873	32,155,169	1889	34.008,370
1858	1,428,000	1874	39,356,781	1890	34,854,640
1859	2,378,000	1875	43,532,223	1891	33,183,475
1860	3,055,327	1876	56,550,973	1892	35,802,930
1861	3,721,998	1877	53,110,742	1893	33,169,375
1862	5,990,300	1878	40,862,091	1894	36,968,400
1863	6,268,480	1879	46,903,360	1895	35,856,690
1864	7,923,670	1880	46,074,154	1896	27,195,550
1865	8,949,931	1881	45,076,639	1897	34,882,325
1866	8,532,047	1882	40,529,119	1898	28 063,240
1867	10,288,600	1883	40,848,690	1899	28,332,090
1868	14,232,687	1884	37,415,330	1900	27,750,000
1869	15,413,970	1885	36,561,390	1901	26,900,000

LUMBER PRODUCTION OF CALIFORNIA, IN THOUSAND FEET, 1898–1901.

Year.	Redwood.	Sugar Pine.	Yellow Pine.	Spruce.	Cedar.	Fir.
1898	276,451	42,176	180,454	22,688	2,015	24,210
1899	272,283	50,736	211,115	21,963	4 882	20,508
1900	327,916	67,920	181,272	20.204	4,049	49,583
1901	287,001	83,467	152,565	32,943	33,550	38,259

Total, all kinds, 1898	604,016,767 feet
Total, all kinds, 1899	581,488,895 feet
Total, all kinds, 1900	650,981,012 feet
Total, all kinds. 1901	607,770,893 feet



SUGAR-PINE FOREST.

THE MINERAL PRODUCTIONS OF CALIFORNIA FOR NINE YEARS.

Compiled by CHAS. G. YALE, Statistician.

Under Direction of LEWIS E. AUBURY, State Mineralogist.

Products.	1892		1893		1894		1895		1896		1897		1898		1899		1900	
	Quantity	Value.	Quantity	Value	Quantity	Value.	Quantity	Value.	Quantity	Value.	Quantity	Value.	Quantity	Value.	Quantity	Value.	Quantity	Value.
Antimony, tons			50	$ 2,250	150	$ 6,000	33	$ 1,485	17	$ 2,320	20	$ 3,500	40	$ 1,200	75	$ 13,500	70	$ 5,700
Asbestos, tons	30	$ 1,830	50	2,500	50	2,250	25	1.000					10	200	30	750	50	1,250
Asphalt, tons	7.550	75,500	9.150	161,250	11,698	233.800	25,525	170.500	20,914	362,590	22,697	404,350	25.690	482,175	15,060	308,130	12,575	253,950
Bituminous rock, tons	24 000	72,000	32,000	192,036	31,214	115,193	38,921	121,586	49,456	122,500	45,470	128,173	46 836	137,575	40,321	116,097	25,306	71,495
Borax, lbs.	11,050,495	838.787	7,910.563	593,292	11,540.099	807 807	11,918.000	595.900	13,508,000	675,400	16,000,000	1,080,000	16,600,000	1,153,000	40,714,000	1,139,882	51,674,000	1,013,251
Cement, bbls.	5,000	15,000			8,000	21,600	16.383	32,556	9,500	28,250	18,000	66,000	50,000	150,000	60,000	180,000	52,000	121,000
Chrome, tons	1,500	22,500	3 319	49 785	3 680	39 980	1.740	16,796	786	7,775							140	1,400
Clay—Brick, M			103.900	801,750	81,675	457.125	131,772	672,360	24 000	524.740	97,468	563,240	100,102	571,362	125,950	754,730	137,191	905,210
Clay—Pottery, tons	100.000	50,000	24,856	67,284	28,475	35,073	37,660	39.685	41.907	62.900	24,592	30.290	28,947	33,747	40,600	42,700	59,636	60,956
Coal, tons	85,178	209,711	72,603	167,555	59,887	139,862	79,858	193,790	70,619	161,335	87,449	196,255	143 045	337,475	160,941	420,109	176,956	535,531
Copper, lbs.	2,980,944	342,808	239,682	21.571	738.594	72,486	225.650	21,901	1,992,844	199,519	13,638,626	1,540,666	21,543,229	2,475,168	23,915,486	3,990,534	29,515,512	4,748,242
Fuller's earth, tons															620	12,400	500	3,750
Gold		12,571,900		12,422,811		13,923.281		15,334,317		17,181,562		15,871,401		15,906,478		15,336,031		15,863,355
Granite, cu. ft.		1,000,000		531,322	312.365	228,816	288.449	224,329	185.261	201,004	339,288	188,024	98,369	147,732	128,924	141,070	311,803	295,772
Gypsum, tons	2,000	20,000	1,620	14,280	2,446	24,584	5,158	51,014	1.310	12,580	2,200	19,250	3,100	23,600	3,663	14,950	2,522	10,088
Infusorial earth, tons			50	2,000	51	2,040					5	200						
Iron ore, tons			250	2,000	200	1,500												
Lead, tons	680	54,400	333	24.975	475	28,500	796	49,364	646	38.805	298	20,264	328	23.907	360	30,642	520	41,600
Lime and limestone		300,000		301,276		337,975		457.784		332,617		291,456		278,558		343.760		315,231
Lithia mica, tons															124	4,600	440	11,000
Macadam, tons			271,500	256,875	441,967	369,438	840,650	700,987	646,646	510,245	487,911	313,087	452,691	369,082	323.590	239,867	360,597	262,570
Magnesite, tons	1,500	15,000	1,093	10,930	1,440	10,240	2,200	17,000	1,500	11,000	1,143	13,671	1,263	19,075	1,280	18,480	2,252	19,333
Manganese, tons	300	3,000	270	4,050	523	5,512	880	8.200	518	3,415	504	4,080	440	2,102	295	3,165	131	1,310
Marble, cu. ft.		115,000		40.000	38,441	98.326	14,864	56,566	7,889	32.415	4,102	7,280	8,050	23.594	9,682	10,550	4,103	5,891
Mineral paint, tons	25	750	590	26,795	610	14,140	750	8,425	395	5,540	578	8,165	653	9.698	1,704	20,294	529	3,993
Mineral water, gals.	331,875	162,019	383,179	190,667	402.275	184,481	701,397	291,500	808,843	337,434	1,508,192	345.863	1,429,809	213,817	1,338,537	406,691	2,456,115	268,607
Natural gas, cu. ft.		55,000		68,500		79,072		112,000		114,457		62,657		74,424	115,110,000	95,000	40,565,500	34,578
Onyx and Travertine		1,800		27.000		20.000		12,000		24,000								
Paving blocks, M			2,770	96,950	2,517	66,981	2,332	73,338	4,161	77,584	1,711	35,235	1,144	21,725	305	7,861	1,192	23,775
Petroleum, bbls	385,049	561,333	470,179	608,092	783,078	1,064,521	1,245,339	1,000,235	1,257,780	1,180,793	1,911,569	1,918,269	2,249,088	2,376.420	2,677,875	2,660,793	4,329,950	4,152,928
Platinum, ozs.	80	440	75	517	100	600	150	900	162	944	150	900	300	1,800	300	1,800		
Pyrites, tons													6,000	30,000	5,400	28,620	3,642	21,133
Quartz crystals																		18,000
Quicksilver, flasks.	27,993	1,139,600	30,164	1,108,527	30,416	934 000	36,104	1,337,131	30 765	1,075,449	26.648	993,445	31,092	1,188,626	29,454	1,405,045	26,317	1,182,786
Rubble, tons			99,600	199,200	219,933	295,400	414,038	394,952	313,973	329,639	333.212	287,025	724,674	445.395	641,308	547,025	428,690	299,072
Salt, tons	23,570	104,788	50,500	213.000	49,131	140.087	53.031	150,576	64,743	153,244	67,851	157,520	93,421	170,855	82,654	149.588	89.338	204,754
Sand—Glass, tons															2,000	2,000	2,000	2,000
Sand—Quartz, tons															1,000	1,500	200	200
Sandstone, cu. ft.		50,000		26,314		113.592		35,373		28.379		24,086		46,384	56,264	103,384	378,468	254,140
Serpentine, cu. ft.							4,000	4,000	1,500	6,000	2,500	2,500	750	3,000	500	2,000	350	2,000
Silver		463,602		537,157		297,332		599.789		422,464		452,789		414,055		504,012		1,510,344
Slate, squares	3,500	21,000	3,000	21,000	1,800	11,700	1,350	9,450	500	2,500	400	2,800	400	2,800	810	5,900	3,500	26,250
Soapstone, tons			400	17,750			25	375										
Soda, tons					1,530	20.000	1,900	47,500	3,000	65,000	5,000	110,000	7,000	154,000	10,000	250,000	1,000	50,000
Sulphur, tons													2	50				
Tin, lbs.	162,000	32,400																
Tourmaline																		500
Turquoise, lbs.																	500	20,000
Totals		18,300,168		18,811,261		20.203.204		22,844,663		24.291,398		25,142,441		27,289,079		29,313,460		32,622,945

RELATIVE RANK OF MINERAL PRODUCT OF COUNTIES, 1900.

The relative rank of the counties of the State, in point of mineral productions, is given in the following table. In each case the value given includes that of all mineral substances combined produced in the respective counties for the year. Some counties produce in addition to gold and silver, five, six, or seven other substances, while other counties which yield little or no gold or silver produce in large quantities, quicksilver, mineral oils, copper, lead, asphalt, structural materials, etc. The figures after the names of the counties indicate aggregate value of all mineral products for the year, including the precious metals. The term "undistributed" includes total values of such substances as are grouped to avoid disclosing private business, as in the case of single operations in a county.

	1899	1900	1900 Gain or Loss Compared with 1899.	
			Gain.	Loss.
Shasta	$4.661,980	$5,574,026	$912,046	....
Los Angeles	1,729 964	2 155,198	425,234	....
San Bernardino	1,859,351	1,965,143	105,792	....
Nevada	2,231,898	1,916,899	....	$314,999
Calaveras	1,303,188	1,905,856	602,668	....
Kern	1,027,366	1,867,856	840,490	....
Tuolumne	1,650,880	1,659,258	8,378	....
Amador	1,593,720	1,479,009	....	114,711
Placer	1,177,812	1,128,882	....	48,930
Siskiyou	991 871	1,010,383	18,512	....
Mono	749,556	752,121	2,565	....
Trinity	715,595	698,689	....	16,906
Sierra	450,474	663,159	212,685	....
Alameda	508,799	639,771	130,972	....
Fresno	497,234	609,847	112,613	....
Santa Barbara	318,528	528,438	209,910	....
Butte	504,795	500,786	....	4,009
Santa Clara	391 940	497,386	105.446	....
Napa	701,416	493,100	....	208,316
Ventura	613,450	476,161	....	137,289
El Dorado	425,346	426,420	1,074	....
Inyo	473,851	420,586	....	53,265
San Diego	381,215	402,061	20,846	....
Plumas	381,166	369,379	....	11,787
Riverside	272,848	285,112	12.264	....
Yuba	189,939	284,631	94,692	....
Madera	115,620	268,467	152,847	....
Sacramento	233,755	259,439	25,684	....
Orange	112,077	259,174	147,097	....
San Benito	290,495	205,650	....	84,845
Marin	81,150	202,500	121,350	....
Santa Cruz	251,392	191,091	....	60,301
Lake	204,103	172,745	....	31 358
Mariposa	565,636	171,516	....	394 120
Sonoma	142,330	157,135	14,805	....
Contra Costa	135,113	146,900	11,787	....
Humboldt	235,274	118,827	....	116,447
San Luis Obispo	68,548	85,626	17,078	....
San Francisco	275,694	58,400	....	217,294
San Joaquin	111,880	39,862	....	72,018
Solano	16,937	24,700	7,763	....
Tulare	20,810	21,566	756	....
Stanislaus	11,769	21,405	9,636	....
Lassen	28,898	20,483	....	8,415
Monterey	17,378	19,175	1,797	....
San Mateo	58,225	16,500	....	41,725
Colusa	1,420	13 930	12,510	....
Mendocino	8,788	8,448	....	340
Kings	11,550	5,000	....	6,550
Del Norte	4 450	3,483	....	967
Tehama	19.800	2,200	....	17,600
Yolo	384	1,760	1,376	....
Undistributed	485,802	1,406 803	921,001	....
	$29,313.460	$32,612,942	$5.261,674	$1 962,192

In 1900 the minerals of California were produced in the following counties:—

Antimony	In	Inyo.
Asbestos	"	Riverside.
Asphaltum	"	Kern, Los Angeles, Santa Barbara, and Ventura.
Bituminous Rock	"	San Luis Obispo and Santa Cruz.
Borax	"	Inyo and San Bernardino.
Cement	"	San Bernardino.
Chrome	"	Shasta.
Clay (brick)	"	Alameda, Fresno, Humboldt, Kern, Kings, Los Angeles, Madera, Marin, Mendocino, Monterey, Riverside, Sacramento, San Diego, San Joaquin, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Shasta, Sonoma, Tehama, Tulare, and Ventura.
Clay (pottery)	"	Amador, Los Angeles, Placer, Riverside, and Santa Clara.
Coal	"	Alameda, Amador, Contra Costa, Orange, and Riverside.
Copper	"	Amador, Calaveras, El Dorado, Kern, Madera, Nevada, San Bernardino, and Shasta.
Fullers' Earth	"	Kern.
Gold	"	Amador, Butte, Calaveras, Del Norte, El Dorado, Fresno, Humboldt, Inyo, Kern, Lassen, Los Angeles, Madera, Mariposa, Mono, Nevada, Orange, Placer, Plumas, Riverside, Sacramento, San Bernardino, San Diego, Shasta, Sierra, Siskiyou, Stanislaus, Trinity, Tulare, Tuolumne, Ventura, and Yuba.
Granite	"	Madera, Placer, Riverside, Sacramento, San Bernardino, San Diego, Santa Barbara, Trinity, Tulare, and Ventura.
Gypsum	"	Los Angeles and Tulare.
Lead	"	Inyo, Mono, and San Bernardino.
Lithia Mica	"	San Diego.
Limestone and Lime	"	Butte, El Dorado, Kern, Mono, Monterey, San Benito, San Bernardino, Santa Barbara, Santa Clara, Santa Cruz, Shasta, and Solano.
Macadam	"	Alameda, Los Angeles, Sacramento, San Benito, San Bernardino, San Francisco, San Mateo, Santa Barbara, and Solano.
Magnesite	"	Alameda, Napa, Santa Clara, and Tulare.
Manganese	"	Alameda and Plumas.
Marble	"	Amador.
Mineral Paint	"	Calaveras and Stanislaus.
Mineral Water	"	Butte, Colusa, Contra Costa, Fresno, Humboldt, Lake, Mendocino, Monterey, Napa, San Benito, San Diego, Santa Barbara, Santa Clara, Shasta, Siskiyou, Solano, and Sonoma.
Natural Gas	"	Sacramento, San Joaquin, and Santa Barbara.
Paving Blocks	"	San Bernardino, Solano, and Sonoma.
Petroleum	"	Fresno, Kern, Los Angeles, Orange, Santa Barbara, and Ventura.
Pyrites	"	Calaveras and Nevada.
Quartz Crystals	"	Calaveras.
Quartz Sand	"	Riverside.
Quicksilver	"	Colusa, Lake, Napa, San Benito, San Luis Obispo, Santa Clara, Sonoma, and Trinity.
Rubble	"	Los Angeles, Marin, Monterey, Placer, Sacramento, San Diego, San Francisco, San Luis Obispo, Santa Barbara, and Ventura.
Salt	"	Alameda, Colusa, Riverside, and San Diego.
Sandstone	"	Los Angeles, Orange, Santa Clara, Ventura, and Yolo.
Serpentine	"	Los Angeles.
Silver	"	Amador, Butte, Calaveras, El Dorado, Fresno, Humboldt, Inyo, Kern, Lassen, Madera, Mariposa, Mono, Nevada, Placer, Plumas, Riverside, Sacramento, San Bernardino, San Diego, Shasta, Sierra, Siskiyou, Trinity, Tulare, Tuolumne, and Yuba.
Slate	"	El Dorado.
Soda	"	Inyo.
Tourmaline	"	San Diego.
Turquoise	"	San Bernardino.

Many of these substances are found in other counties than those named, but were only mined in 1900 in the counties stated. San Bernardino was the only county producing as many as thirteen different mineral substances in 1900; Los Angeles and Santa Barbara produced ten; Riverside and San Diego, nine; and Kern and Shasta, eight each.

As far as the largest production of different substances was concerned, the banner counties in 1900 were as follows: Amador leads in the production of marble; Alameda, in coal, macadam, manganese, and salt; Calaveras, in mineral paint; El Dorado, in slate; Inyo, lead and soda; Kern, fullers' earth; Monterey, limestone; Napa, magnesite and quicksilver; Nevada, gold and pyrites; Los Angeles, brick clay, gypsum, petroleum, and serpentine; Placer, granite; Riverside, asbestos, pottery clay, and quartz sand; San Bernardino, borax, cement, and turquoise; San Joaquin, natural gas, Santa Barbara, asphaltum, rubble, and sandstone; Santa Cruz, bituminous rock and lime; San Diego, lithia mica; Shasta, copper and silver; Sonoma, paving blocks.

It is to be noted that two counties lead in four products, Alameda and Los Angeles; two lead in three, Santa Barbara and San Bernardino; and five lead in two, Inyo, Napa, Nevada, Santa Cruz, and Shasta.

DATES OF FIRST AND LAST LIGHT AND KILLING FROSTS, WITH LOWEST TEMPERATURE AND DATES OF BLOOMING FRUIT TREES, IN SACRAMENTO, FROM 1869 TO 1902.

Prepared by MR. S. H. GERRISH, voluntary observer, Weather Bureau.

Year.	First Light Frost of the Season.	Minimum Temperature First Light Frost.	First Killing Frost of the Season.	Minimum Temperature First Killing Frost.	Last Light Frost of the Season.	Minimum Temperature Last Light Frost.	Last Killing Frost of the Season.	Minimum Temperature Last Killing Frost.	First Appearance of Blossoming Fruit Trees.
1869-70	Nov. 8, 1869	40	November 30, 1869	31	May 17, 1870	41	March 8, 1870	31	February 21, 1870
1870-71	Oct. 24, 1870	36	October 27, 1870	30	April 19, 1871	40	March 18, 1871	31	February 8, 1871
1871-72	Oct. 25, 1871	37	November 6, 1871	30	April 12, 1872	38	January 9, 1872	27	February 26, 1872
1872-73	Oct. 22, 1872	37	November 10, 1872	27	April 6, 1873	34	April 5, 1873	27	February 16, 1873
1873-74	Oct. 16, 1873	33	October 17, 1873	31	April 14, 1874	38	March 19, 1874	28	February 14, 1874
1874-75	Oct. 29, 1874	39	November 20, 1874	29	April 7, 1875	31	April 6, 1875; coldest ever known	24	February 21, 1875
1875-76	Oct. 28, 1875	38	No killing frost; coldest on December 21, 1875	35	April 8, 1876	38	January 16, 1876	29	February 20, 1876
1876-77	Nov. 3, 1876	36	November 13, 1876	29	April 23, 1877	42	February 11, 1877	32	February 2, 1877
1877-78	Oct. 31, 1877	33	November 1, 1877	31	March 9, 1878	39	January 12, 1878	30	February 1, 1878
1878-79	Oct 18, 1878	37	October 28, 1878	29	April 15, 1879	41	February 6, 1879	27	February 15, 1879
1879-80	Nov. 8, 1879	39	November 27, 1879	25	April 18, 1880	37	March 30, 1880	28	February 29, 1880
1880-81	Oct. 31, 1880	35	November 13, 1880	28	March 18, 1881	33	March 17, 1881	31	February 22, 1881
1881-82	Oct. 4, 1881	36	November 11, 1881	30	May 15, 1882	41	March 9, 1882	29	February 28, 1882
1882-83	Oct. 5, 1882	42	November 13, 1882	27	May 2, 1883	41	February 18, 1883	29	February 19, 1883
1883-84	Oct. 16, 1883	39	November 4, 1883	31	April 17, 1884	43	February 18, 1884	31	February 20, 1884
1884-85	Sept. 30, 1884	41	November 30, 1884	31	April 22, 1885	41	January 26, 1885	31	February 10, 1885
1885-86	Oct. 11, 1885	38	No killing frost; coldest on December 28, 1885	34	April 14, 1886	39	January 10, 1886	27	February 8, 1886
1886-87	Oct. 9, 1886	40	November 4, 1886	32	May 10, 1887	34	February 26, 1887	26	January 28, 1887
1887-88	Oct. 20, 1887	37	November 25, 1887	28	April 26, 1888	38	February 3, 1888	28	February 20, 1888
1888-89	Oct 19, 1888	37	November 6, 1888	28	March 19, 1889	34	February 19, 1889	26	February 3, 1889
1889-90	Oct. [illegible], 1889	36	December 29, 1889	27	April 14, 1890	35	February 28, 1890	25	February 13, 1890
1890-91	Oct. 11, 1890	34	November 7, 1890	28	March 30, 1891	34	February 25, 1891	26	February 17, 1891
1891-92	Oct 29, 1891	36	November 14, 1891	30	May 11, 1892	34	April 26, 1892	32	February 16, 1892
1892-93	Oct. 13, 1892	36	November 16, 1892	29	April 12, 1893	33	March 13, 1893	28	February 16, 1893
1893-94	Oct. 11, 1893	34	November 3, 1893	28	May 16, 1894	37	March 4, 1894	30	February 12, 1894
1894-95	Oct 28, 1894	[illegible]	December 25, 1894	31	April 12, 1895	41	February 5, 1895	33	February 13, 1895
1895-96	Nov. [illegible], 1895	36	November 24, 1895	30	May 17, 1896	41	March 4, 1896	32	February 1, 1896
1896-97	Oct. [illegible], 1896	[illegible]	November 26, 1896	32	April 2, 1897	39	February 23, 1897	30	February 16, 1897
1897-98	Oct. 15, 1897	[illegible]	November 8, 1897	32	April 7, 1898	39	March 26, 1898	30	February 16, 1898
1898-99	Oct. [illegible], 1898	[illegible]	November 23, 1898	32	May 18, 1899	42	February 9, 1899	30	February 14, 1899
1899-00	Oct. [illegible], 1899	[illegible]	No killing frost; coldest on December 19, 1899	34	April 13, 1900	40	No killing frost; coldest on February 8, 1900	34	February 8, 1900
1900-01	Oct. [illegible], 1900	41	December 28, 1900	32	April 10, 1901	40	April 4, 1901	33	February 10, 1901
1901-02	Nov. [illegible], 1901	[illegible]	December 11, 1901	32	....	..	....	..	February 12, 1902

COMPARATIVE TABLE OF THE TEMPERATURES AND RAINFALL FOR NINETEEN YEARS.

Prepared by the United States Weather Bureau Office at San Francisco.

Year.	RED BLUFF.				SACRAMENTO.				FRESNO.				LOS ANGELES.				SAN FRANCISCO.			
	Mean.	Max.	Min.	Rainfall	Mean.	Max.	Min.	Rainfall	Mean.	Max.	Min.	Rainfall	Mean.	Max.	Min.	Rainfall	Mean.	Max.	Min.	Rainfall
1883	61.5	107	19	13.76	59.9	104	22	13.48	......	......	......	.....	61.6	104	28	14.14	55.6	95	36	15.43
1884	60.8	107	22	28.06	59.8	100	21	34.92	......	......	......	......	60.8	102	34	40.15	56.7	83	35	38.82
1885	64.4	108	33	29.63	62.5	105	34	20.72	......	......	......	.. ..	63.0	108	36	10.53	57.8	87	43	24.90
1886	63.2	109	30	17.21	60.3	105	27	18.17	......	......	......	......	61.1	98	32	16.72	57.3	94	41	20.02
1887	64.4	112	27	13.60	60.3	100	28	13.43	......	......	.....	......	61.7	100	34	16.02	56.5	97	33	19.04
1888	64.5	109	18	24.94	61.4	108	19	18.46	65.4	111	20	8.76	60.7	99	31	20.82	57.3	93	29	23.03
1889	63.3	111	26	32.87	60.9	104	31	27.48	64.3	112	27	12.27	63.0	103	32	33.25	57.9	89	39	36.94
1890	61.5	110	22	25.60	59.4	102	27	20.95	62.6	111	24	8.36	63.6	105	30	12.69	53.3	86	36	25.43
1891	62.4	114	26	23.04	60.6	106	26	15.63	63.0	114	26	8.94	63.0	109	33	12.84	56.6	100	37	21.11
1892	62.2	108	28	33.48	60.2	106	26	23.60	63.1	112	27	8.75	61.6	99	33	18.72	56.0	92	38	22.08
1893	60.6	106	27	24.36	58.8	103	28	16.59	61.0	109	28	9.40	61.5	92	31	21.96	54.3	90	36	17.91
1894	62.0	110	27	26.98	60.3	108	26	22.61	62.6	109	25	12.48	60.3	99	32	7.51	55.1	94	36	24.32
1895	62.2	108	28	22.57	60.2	102	28	17.38	62.5	110	26	10.39	61.7	100	34	12.55	55.6	89	38	17.13
1896	62.5	109	26	28.46	60.7	104	28	25.06	63.7	111	28	11.02	63.1	103	35	11.80	55.9	91	33	28.25
1897	62.0	109	27	20.08	59.8	105	24	15.32	62.3	110	23	8.41	61.8	97	30	14.28	55.0	92	38	16.40
1898	62.5	112	24	12.91	59.5	110	26	10.04	63.1	114	24	4.99	62.5	99	31	4.83	54.6	89	36	9.31
1899	62.4	109	26	28.07	59.6	102	30	21.14	62.6	111	24	10.54	62.0	100	33	8.69	55.0	94	34	23.23
1900	62.4	109	29	21.77	59.9	102	30	17.91	62.8	109	26	11.06	63.5	96	37	11.30	56.2	92	40	15.33
1901	63.1	111	25	25.51	60.1	105	26	18.52	63.5	110	27	8.07	62.1	97	31	11.96	55.2	91	37	19.75

NOTE.—Red Bluff, located in northern extremity of the Sacramento Valley; Sacramento, central of that valley; San Francisco, representing the coast region; Fresno, central of San Joaquin Valley; Los Angeles, representing Southern California.

CALIFORNIA

RESOURCES AND POSSIBILITIES

TWENTIETH ANNUAL REPORT
OF THE
California State Board of Trade
FOR THE YEAR 1909

Combined With the FIRST REPORT
OF THE
California Development Board

Submitted as of March, 1910

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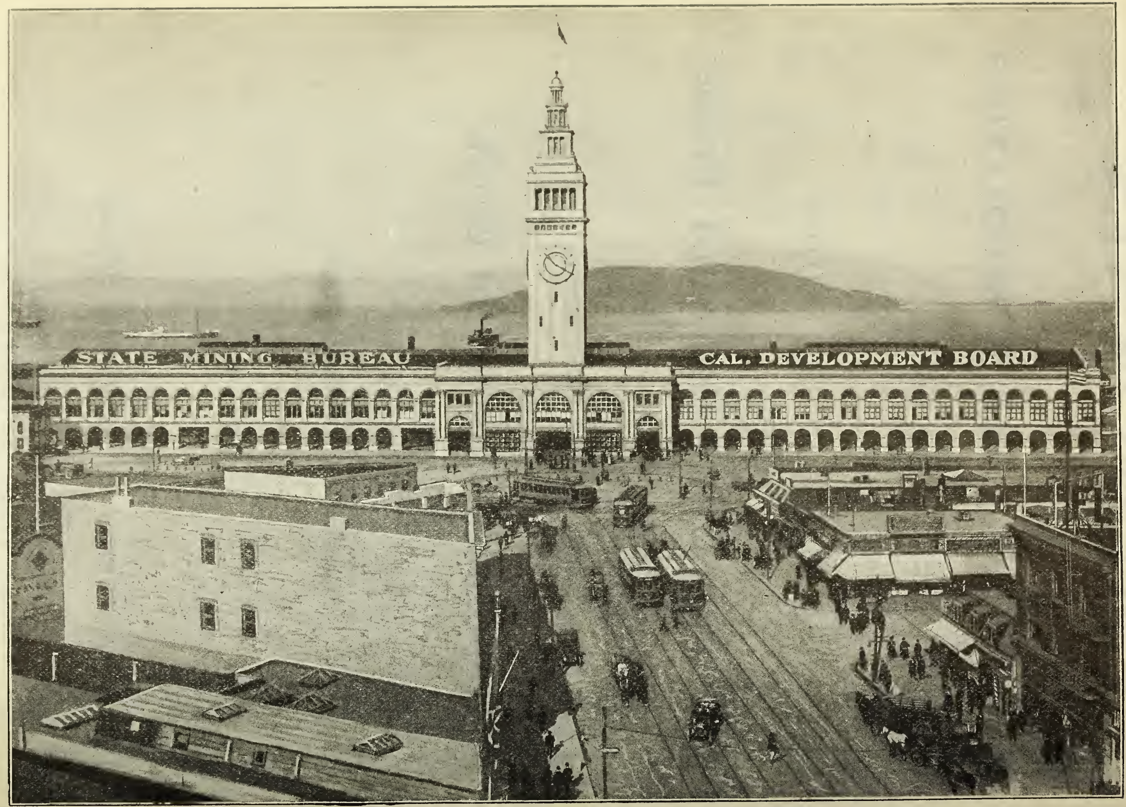
PUBLISHED BY THE
CALIFORNIA DEVELOPMENT BOARD

OFFICE AND EXHIBITION HALL
FERRY BUILDING, SAN FRANCISCO
UPPER FLOOR



UNION FERRY BUILDING, SAN FRANCISCO,

South half of upper floor occupied by California Development Board Offices and Exhibits

STATE CAPITOL, SACRAMENTO

TWENTIETH ANNUAL REPORT
OF THE
CALIFORNIA STATE BOARD OF TRADE
1909

Combined With the First Report
OF THE
CALIFORNIA DEVELOPMENT BOARD

To the Members of the Board:—

This report of necessity is mainly compiled and published from the work and records of the California State Board of Trade, which on January 1, 1910, was combined with the California Promotion Committee and the Manufacturers' and Producers' Association under the name of

THE CALIFORNIA DEVELOPMENT BOARD.

It is the closing report of the California State Board of Trade as an organization and completes a series covering a period of twenty years. During this period the State Board has been a prominent and important factor in State development, and has passed through varied changes and experiences, but without change in purpose, aim, or policy. The combination with the California Promotion Committee and the Manufacturers' and Producers' Association, therefore, marks the most important change in its history, and is justified only by the hope and expectation that the combined resources and energies of the three bodies working in harmony in one organization may develop greater efficiency and influence than was possible to be attained by the separate bodies, having to a considerable extent similar purposes, working separately.

The record of the year, as in previous years, has given abundant demonstration of the benefits to the State in maintaining a central body where the varied industrial interests are attractively exhibited and made easily accessible to the home-seeker, the investor, tourist or seeker after knowledge who visits the State.

Products of the Soil. That the landless man may be brought face to face with the manless land and the prospective settler may be brought to a knowledge of the opportunities presented in the State, and the possibilities which the soil and climate of California present, the Board has endeavored to enlarge and improve the agricultural and horticultural exhibits in the Exhibit Hall each succeeding year, and to supply information through publications and by explanation calculated to benefit and assist the homeseeker.

Exhibit Hall. The exhibits in the Exhibit Hall are modern, interesting and comprehensive. This is accomplished by continued effort on the part of the Board in renewing both the stands and products, and through the co-operation of county boards of supervisors and county commercial organizations, which strive to attractively present the peculiar features of their respective districts to the great number of people who daily visit the rooms. By this combination of effort and interest, California is able to present the greatest exhibit of State products that has ever been presented by any State in the Union, a fact recognized both at home and abroad.

Number and Kind of Visitors. During the year the daily average attendance of visitors to the Exhibit Hall is estimated at upwards of five hundred. The hall is kept open Sundays and holidays, so that it is accessible to visitors 365 days in the year. A most effective object-lesson is thus presented to some 200,000 visitors annually, the greater part of whom would otherwise have but meager opportunity to learn of the varied productions in the State. These visitors come for the most part from the States east of the Sierra Nevada Range or from foreign countries. The expression of appreciation of the products exhibited, the printed matter distributed and the oral information supplied stimulates still greater effort to enlarge this feature of advertising the State.

County and State Maps. In addition to products, the Board is supplied with large relief maps which are attractive features to those who are interested in learning of the topography of the State. These show mountain and valley regions and fix in the mind of the observer the feature of topography as it cannot be shown comprehensively in any other way. A relief map of San Francisco Bay and its environs is likewise found instructive and interesting. The magnitude of the bay and of the harbor is thus shown. Mountain ranges, rivers, and principal producing districts and location of principal towns and cities, as these maps show them, are not easily effaced from memory once they have been made known.

County maps in convenient racks are likewise provided, which when studied in connection with county publications, afford excellent opportunity for learning of special features that relate to agriculture, horticulture, lumbering, mining and other interests.

A State map for general distribution, and which is made a part of the annual report, is published each year. This map, which gives all railroad additions and extensions made during the year, and the changes that have been made in county boundaries, is admitted to be the most comprehensive and complete publication of its kind, and is in constant demand.

The Annual Report. Demand for copies of the Annual Report increases year by year, as the information given and its general character become better known. While it has been the aim of the Board to add new features of interest each year, there is scope for statistical information which the resources of the Board up to now were insufficient to incorporate. It is to be hoped that the combination of the three bodies into the present organization,—viz: the California Development Board,—will permit greater scope, and that increased influence and benefit will demonstrate the wisdom of the combined effort.

The California State Board of Trade with its record of effectiveness in State Development, the Manufacturers' and Producers' Association with its experience in encouraging manufactures and the betterment of manufacturing conditions, and the Promotion Committee working along the lines of publicity and co-operation,

PERMANENT EXHIBIT OF THE CALIFORNIA DEVELOPMENT BOARD, SAN FRANCISCO.

united in well considered and systematic effort for the upbuilding of all interests in this commonwealth, seems to place the new organization on the threshhold of opportunity for a greater work for the State than has yet been attempted. In this unity of endeavor the California Development Board will have the enthusiastic co-operation of active county organizations, the earnest support of manufacturing, industrial and commercial interests, and thus occupy a position of more state-wide influence than any other organization in the State.

Daily Lectures. Throughout the year daily lectures have been kept up and the lecture-room is usually well filled two or three times each day. These lectures which are of a descriptive character, are illustrated and made interesting by stereopticon views. The lecturers are specially informed about some particular part of the State so that the information gained through them is from a reliable source. As it is with the exhibits, the lectures are free, and open to all who seek to avail themselves of the opportunity to attend them.

Everything Free. No charge is made for admission to the Exhibit. Hall or for publications distributed from the information bureau, and no obligation is incurred in seeking information, making use of the reading and writing tables, or for anything distributed in the way of printed publications.

Summary of Work. Bare reference only can be made to the work of the clerical force. The Executive Committee initiates and directs. The detail is attended to by experienced and trained employees,. each working out some special branch of the many duties which are never at an end.

The volume of correspondence is large and the duty of answering intelligently the inquiries by mail, involves general knowledge of the State and a painstaking interest. The distribution of pamphlets, folders, etc., published by the Board, provided by the State and Federal Agricultural Departments, the University of California, and more largely than all others, by the county organizations, runs into millions each year. The demand for reliable printed information is never satisfied, nor is the supply ever filled. The influence of the constant outgoing of matter of this kind is not generally appreciated. It is only by coming in daily contact with the work that the importance of careful selection of the matter distributed and the unwisdom of extravagant statement is understood.

General Work. The Board primarily gives attention to matters pertaining to State development, but all matters having a bearing on Coast or State progress receive consideration within reasonable lines. All matters relating to the Trans-Mississippi district have a direct or remote interest on the progress of California, as do many matters of National character. These enlist the attention of the Board and are made the basis of action.

During the year, in answer to an attack in Everybody's Magazine on the Weather Bureau, after careful examination of conditions a resolution was adopted endorsing the work of the Weather Bureau, which received the thanks of the Department at Washington.

Your president was selected as chairman of the Alaska-Yukon-Pacific Exposition Committee, formed by the commercial organizations of San Francisco to represent San Francisco at the Exposition. In this capacity he supervised the preparation of an illustrated book on San Francisco, which was distributed there in connection with the illustrated lectures.

Communications were sent to various commercial organizations in the fruit centers of the State, giving them a copy of the law received from the State Inspector of the Horticultural Commission in Utah, announcing that fruit showing evidence of codling moth was to be barred from that state.

Following its work toward the eradication of thrips, when government free supply was exhausted, the Board with the approval of the Secretary of Agriculture issued a reprint of Bulletin No. 80, "The Thrips and Its Control," giving information necessary for the work of eradication. This bulletin was widely distributed over the state to direct applicants, and county organizations were liberally supplied for local distribution. The importance of this matter is but little understood. The fact is that the deciduous fruit industry was threatened with destruction from the Thrips pest, and but for the attention called to it by the Board, the damage in this State would have been a very serious one. In some districts the entire crop of pears and prunes was being destroyed each year, and, until the Agricultural Department was roused to the necessity of vigorous and earnest action, no special attention was given to it except by the growers, whose efforts had proved futile up to that time. At the instance of the growers, the Board took the matter in hand and after communicating with the Chief of the Bureau of Entomology of the Agricultural Department, was able to rouse interest enough to bring about a thorough investigation of the subject by the Department at Washington, which resulted in the discovery of remedies that have, to a large extent, proven successful.

The Board issued its approval of the Centennial Exposition to be held in May, 1910, at Buenos Ayres, and also of the Industrial Exposition to be held at Turin, Italy, in 1911.

The Board being in close touch with national movements relating to agricultural and kindred industries, sent delegates to Alaska-Yukon-Pacific Exposition at Seattle, the National Irrigation Congress at Spokane, the Trans-Mississippi Commercial Congress at Denver, the Dry Farming Congress at Billings, Montana, the National Food and Dairy Congress at Denver, the National Land Congress at Chicago, the United States Land and Irrigation Exposition at Chicago, the National Mining Congress at Goldfield, and to a number of gatherings in the State.

Membership in the American National Live Stock Association, the Trans-Mississippi Commercial Congress and in the National Irrigation Congress has been continued.

The representative sent by the Promotion Committee to the National Farm Land Congress and the United States Land and Irrigation Exposition, held in Chicago, in November and December, delivered a series of illustrated lectures on California and distributed a large quantity of printed matter descriptive of the State and its industries. These created wide interest.

Among the most interesting meetings participated in by the Board were the conventions of Fruit Growers called for the purpose of improving horticultural conditions in the State, at which the use of sulphur in curing fruit and its relation to the Pure Food Law and the marketing of fruit grown in the State were questions of significant interest.

The Board is conspicuously identified with the Convention League organized for the purpose of securing conventions and congresses for California. Also in the Panama-Pacific International Exposition, which is being exploited for this city, on the completion of the Panama Canal in 1915.

Entertainment of Visitors. Attention has been paid to the entertainment of visitors during the year, not only those coming in large bodies, but individuals of more than passing note. Excursionists from adjacent states have been received and entertained at headquarters, and a large number of individuals have been given attention and shown courtesies that aid in creating a good impression of San Francisco and of the State. It also participated actively in entertaining the officers and cadets of the Japanese Fleet, and in the Portola Festival.

Publicity. Broad publicity has been given to the State during the year through articles published in papers and magazines in other states. European periodicals have also generously used articles furnished them. A vast number of readers have thus been reached.

Financial Condition and Membership. The financial condition of the Board is good and the combined resources of the three bodies open the way to enlarged fields and greater activity. The membership as now constituted is large and is being constantly increased.

Growth of the State. The growth in population, both in cities and in rural districts, for the year is not confined to any particular city or district. The thirteenth census is now being taken, but the official returns will not be available for some time. The California Development Board presents figures as nearly exact as it is possible to obtain except by census methods. These are made up from reports received from the Boards of Supervisors of the various counties and make the total population of the State 2,686,291, which is probably approximately correct.

As showing the distribution of population in the State, the following exhibit by counties is presented.

County.	Population.	Principal City.	Population.
Alameda	400,000	Oakland	235,000
Alpine	600	Markleeville	100
Amador	12,500	Jackson	3,700
Butte	31,000	Chico	12,000
Calaveras	12,500	Angels Camp	3,000
Colusa	17,000	Colusa	2,500
Contra Costa	35,000	Martinez	2,200
Del Norte	3,600	Crescent City	1,200
El Dorado	10,000	Placerville	2,500
Fresno	66,000	Fresno	33,000
Glenn	6,000	Willows	1,200
Humboldt	35,000	Eureka	12,500
Imperial	22,000	Imperial	1,800
Inyo	5,043	Independence	1,050
Kern	33,000	Bakersfield	10,000
Kings	11,500	Hanford	5,000
Lake	7,000	Lakeport	1,200
Lassen	6,000	Susanville	1,500
Los Angeles	460,000	Los Angeles	335,000
Madera	7,598	Madera	2,500
Marin	20,615	San Rafael	6,700
Mariposa	4,720	Mariposa	1,009
Mendocino	25,000	Ukiah	3,500
Merced	16,000	Merced	4,000
Modoc	5,100	Alturas	600
Mono	3,000	Bodie	800
Monterey	28,635	Salinas	5,185
Napa	18,000	Napa	6,500
Nevada	18,000	Grass Valley	5,000
Orange	35,000	Santa Ana	10,000
Placer	17,000	Auburn	2,500
Plumas	6,000	Quincy	600
Riverside	33,000	Riverside	13,000
Sacramento	72,000	Sacramento	56,000
San Benito	8,000	Hollister	3,000
San Bernardino	55,000	San Bernardino	15,000
San Diego	65,000	San Diego	40,000
San Francisco	525,000	San Francisco	525,000
San Joaquin	56,000	Stockton	25,000
San Luis Obispo	25,000	San Luis Obispo	6,000
San Mateo	27,500	Redwood City	3,500
Santa Barbara	30,140	Santa Barbara	11,370
Santa Clara	98,000	San Jose	50,000
Santa Cruz	30,000	Santa Cruz	15,000
Shasta	25,000	Redding	5,500
Sierra	4,017	Downieville	500
Siskiyou	20,000	Yreka	1,800
Solano	30,000	Vallejo	12,000
Sonoma	55,000	Santa Rosa	10,000
Stanislaus	22,000	Modesto	5,000
Sutter	9,000	Yuba City	1,200
Tehama	11,000	Red Bluff	3,500
Trinity	4,800	Weaverville	900
Tulare	35,500	Visalia	6,000
Tuolumne	15,233	Sonora	1,960
Ventura	20,190	San Buenaventura	4,316
Yolo	18,000	Woodland	3,600
Yuba	13,500	Marysville	6,500
Total	2,686,291	Total	1,558,990

Expansion of Agricultural Industries. The development of the agricultural resources of the State is exhibited in the following tables, comparing the acreage sown to certain crops in 1862 with those of 1908. The new census will show later changes.

	1862. U. S. Com. Agr. Report. Acres.	1908. State Board of Equalization Rep. Acres.
Indian Corn	17,339	40,712
Wheat	361,351	1,268,868
Rye	1,415	21,620
Oats	36,607	293,806
Barley	223,217	1,542,966
Hay	250,464	1,066,915
Potatoes	3,624	42,707
Totals	914,788	4,277,594
Add acreage of following, not mentioned in report of 1862:		
Hops		9,469
Celery		4,031
Beans		126,879
Standing Alfalfa		308,519
		4,726,492

GROWTH IN ASSESSED VALUES.

	1850.	1862.	1909.
Assessed value of all property in State	$57,670,689	$160,369,071	$2,438,656,544

To show the changes in farming districts in recent years, which changes are still going on, the following exhibit is submitted:

This is made up from U. S. Census Reports and shows the development in agricultural lines since California became a State.

Size.	Number of Farms. 1890.	1900.
Under 10 acres	2,827	6,846
10 and under 20	4,010	8,236
20 and under 50	7,691	13,110
50 and under 100	5,196	8,067
100 and under 175	....	13,196
175 and under 500	24,534	13,005
500 and under 1000	4,367	5,329
1000 and over	3,672	4,753
Average size	405	397.4

Year.	Population of State.	No. Farms.
1850	92,597	872
1860	379,994	18,716
1870	560,247	23,724
1880	864,694	35,934
1890	1,208,130	52,814
1900	1,485,053	72,542
1909 (Estimated)	2,686,289	112,000

	1850.	1900.	Increased.
Number of Farms	872	72,542	83 fold
Number of Acres in Farm Lands	3,894,000	28,829,000	8 fold
Number of Acres in Farm Lands (imp.)	82,400	11,919,000	393 fold
		1850.	1900.
Value of all Farm Property		$7,399,000	$1,163,000,000

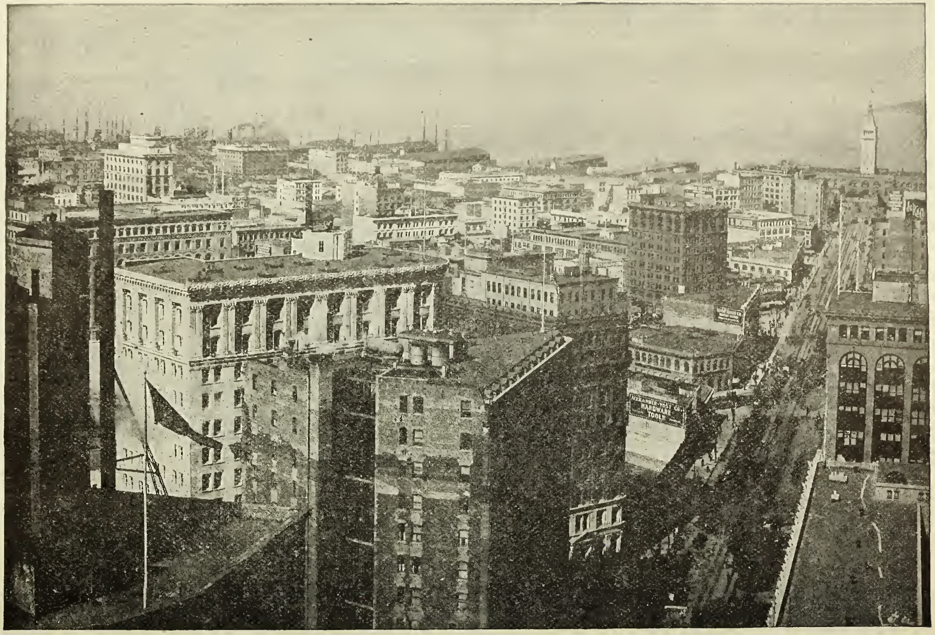
Of the 72,542 farms in 1900, there were operated by

		Per Cent of Total
Owners	55,782	76.9
Cash Tenants	9,074	12.5
Share Tenants	7,686	10.6

		Per Cent of Total
Whites	70,935	97.8
Negroes	135	
Indians	758	2.2
Mongolians	814	

The number and the proportion of owners operating their own holdings is much larger for 1909 than shown above for 1900, but details are not now obtainable but can be given in the next annual report.

Progress in the Metropolis. The fourth anniversary of the great disaster of April, 1906, finds few vestiges of the ruin then wrought. A new city of imposing modern structures occupies the ground where before stood the many examples of architectural variety evolved during the last half of the nineteenth century.



VIEW OF MARKET STREET AND DISTRICT NORTHEAST FROM THIRD STREET, SAN FRANCISCO.

San Francisco has won the admiration and wonder of the world by the courage and energy of her rebuilding, and stands to-day more fit than ever to occupy her proper place among the great cities of the world.

The disaster marked the beginning of a new era and made it possible to modernize a city which represents sixty-one years of growth. Already what was at the time regarded as an overwhelming calamity has brought its benefits. The confidence of her people has been justified and the promise of greater prosperity for the future is hers.

To this prosperity the whole State contributes and in it shares.

San Francisco can now claim to be, in character and equipment of her new structures, the most up-to-date city in the world. The buildings erected since the fire represent a cost greater than those which were destroyed. The following is the official record:—

BUILDING CONSTRUCTION—PRIVATE CAPITAL.

Building Permits granted in San Francisco from April, 1906, to January 1, 1910:

Class A.	94	Buildings	$21,547,260
" B.	118	"	8,470,871
" C.	1,585	"	48,775,267
Frames	14,534	"	59,958,224
Alterations	8,295	"	10,622,027
Total	24,626	"	$149,373,649
Adding 15% for undervaluation			22,406,047
Total			$171,779,696

BUILDING CONSTRUCTION—MUNICIPAL.

This is inclusive of the "Bond Issue" work under way and only applies to those buildings actually in course of construction, wherein the contracts were awarded prior to January 1, 1910.

Total expended May, 1906, to January 1, 1910	$ 6,150,371.50
Grand total in all classes	$177,930,067.50

The increase over the figures of December 31, 1908, viz.: $30,454,518, indicates most strongly the continued and important building operations.

The money expended by private parties for labor on new buildings amounts to over $60,000,000, while the municipality has made large expenditure on the same account for rehabilitation and permanent improvements.

Though San Francisco has always been famous for its hotels it added largely to the number and has now over 160 hotels with nearly 18,000 rooms and accommodations at one time for 38,000 guests. These hotels, with large boarding-houses and apartment-houses, make an aggregate of over 300 caravansaries in the city.

POPULATION OF THE METROPOLIS.

The population, according to the best methods of calculating, is estimated at 525,000.

Within a radius of twenty miles of the city hall there is a population, conservatively estimated, of 1,000,000 persons.

Predictions made at the time the annual report, March 1909, was published in reference to the future of San Francisco have been more than fulfilled. Population has increased largely and trade and commerce have kept pace with the development of the State. This is indicated by the tables showing increase in business and general industrial movement.

Real estate sales for the year amounted to		$33,879,073.00
Postal receipts amounted to		2,212,163.70
Imports, free	$37,354,238.00	
Imports, dutiable	14,114,785.00	51,469,023.00
Exports		55,695,436.00
Custom receipts		6,669,600.70

Important improvements have been made along the harbor front during the year and shipping facilities have been greatly increased. These improvements are but the beginning of plans projected, the carrying out of which involve large expenditures and considerable time.

San Francisco deservedly ranks as one of the Great Cities of the World. She is a Great City by reason of her position and power in the social, commercial and financial world. San Francisco is pre-eminently a commercial city. It is a foreign and domestic market without a peer on the Pacific Coast. The city has all the advantages of location possessed by any of the great commercial centers of the world. It is situated on the north end of a peninsula, six miles wide and twenty miles long, separating San Francisco Bay from the Pacific Ocean.

As a seaport it receives the commercial drainage of a region that has the greatest variety of natural resources of any part of the earth. That drainage is the great inextinguishable, economic fact that rebuilt San Francisco after the catastrophe of 1906 on greater lines than before. It was economic pressure that forced and inspired the energies which have made a new city that is the wonder of the world.

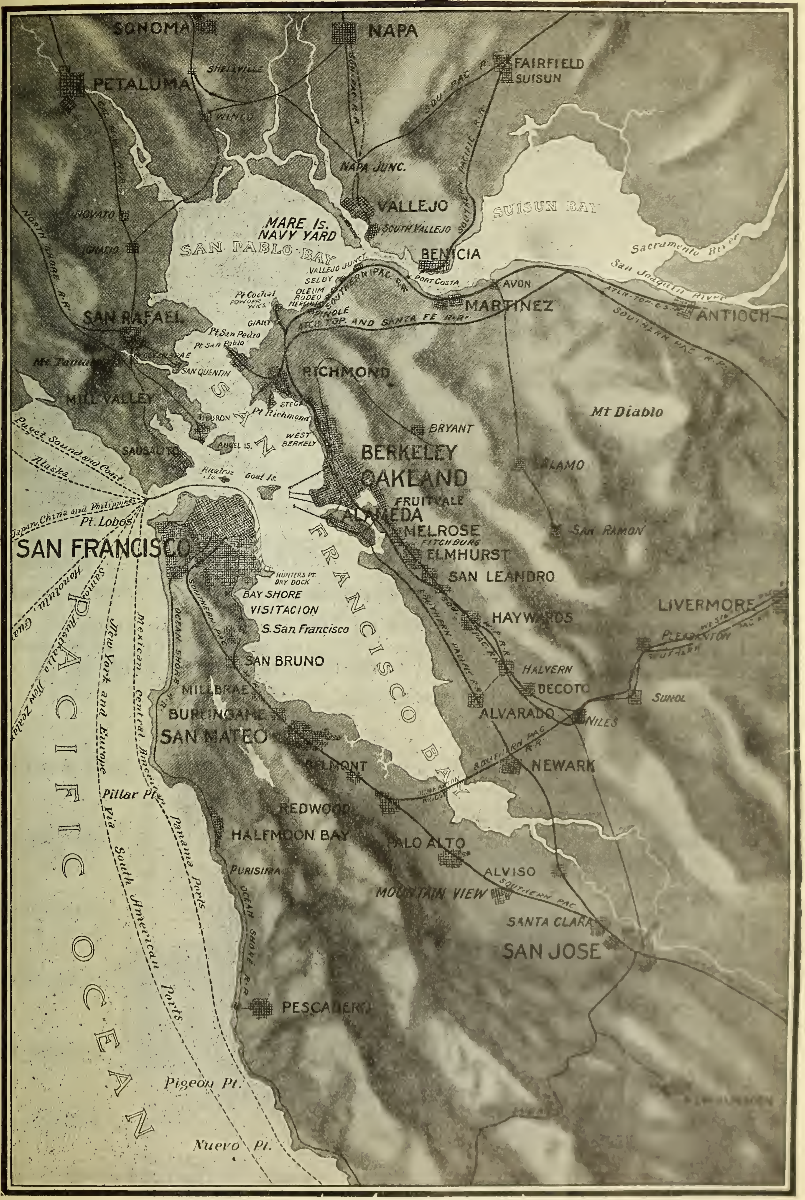
The following from the last annual report is as true now as then and is reproduced here.

MARKET, POST AND MONTGOMERY, SAN FRANCISCO.

The Commerce of the Bay. "The great seaport of Pacific America, with constantly expanding commerce demands ever-widening facilities for handling it. Fortunately this demand is being met by San Francisco and Oakland, the two great cities of the bay region. Formerly there was danger that much of our commerce would be alienated by the lack of adequate port and dock facilities. This risk is no longer imminent. The San Francisco Harbor Commissioners, watchful of the needs of trade, are wisely expanding its facilities on the waterfront within their jurisdiction. But when they have done all within their power, the expansion of commerce will not stop, and to meet it Oakland is wisely and watchfully moving to develop her splendid waterfront to secure deep water to accommodate the largest ships and to meet commerce by water and rail facilities that will give trade a line of least resistance.

"The Oakland waterfront is a great asset of the Pacific trade, and its improvement now planned and in progress means that the commerce of all time is to have on San Francisco Bay every advantage that natural situation justifies and that enlightened public enterprise can supply.

"Hereafter, then, there need be no fear that any ship, however great her tonnage or deep her draught, will fail of accommodation in this bay, or that any cargo, in or out, will lack the latest and most economical device for handling and transfer. The same spirit is upon both cities, not in rivalry, but with the determination that this seaport, intended by nature to be one of the world's greatest, shall by art and enterprise fulfill its destiny."



SAN FRANCISCO BAY AND VICINITY.

Financial. Abstract of the Report of Conditions of State Banks as of November 16, 1909, comprising the reports of 326 Commercial Banks and Commercial Departments, 242 Savings Banks and Savings Departments, and 14 Trust Companies.

RESOURCES.	Commercial.	Savings.	Trust.	Total, Nov. 16, 1909.
Loans on Real Estate	$ 22,050,676.31	$203,094,639.34	$2,531,354.32	$227.676,669.97
Other Loans, Including Overdrafts	116,823,854.76	13,576,023.26	208,890.09	130,608,768.11
Bonds and Other Securities	28,427,568.40	80,468,014.60	4,086,089.94	112,981.672.94
Bank Premises, Furniture and Fixtures, and Safe Deposit Vaults	9,238,913.86	13,471,115.81	1,046,000.00	23,756,029.67
Other Real Estate Owned	2,694,451.67	2,197,725.75	1,535,940.88	6,428,118.30
Due from Banks	50,412,113.87	19,826,711.38	1,367,791.46	71,606,616.71
Specie	16,670,032.24	6,272,863.17	24,262.58	22,967,157.99
Other Lawful Money	1,728,010.29	1,126,871.61	.34	2,854,882.24
Exchanges for Clearing House	2,634,350.42	348,819.43	....	2,893,169.85
Checks and Cash Items	916,447.87	82,409.83	6,509.76	1,005,367.46
Other Assets	2,359,340.36	769,468.37	455,574.07	3,584,382.80
Totals	$253,955,760.05	$341,234,662.55	$11,262,413.44	$606,452,836.04
LIABILITIES.				
Capital	$ 40,175,829.74	$ 21,016,297.58	$1,825,000.00	$ 63,017,127.32
Surplus	16,011,011.32	11,862,319.63	895,000.00	28,768,330.95
Undivided Profits	12,171,371.28	6,274,917.32	123,340.99	18,569,629.59
Bills Payable, including Certificates of Deposit representing Money Borrowed	1,200,015.13	20,358.62	....	1,220,373.75
Due to Banks	17,880,966.54	....	....	17,880,966.54
Individual Deposits	156,690,159.99	299,784,969.62	2,478,359.60	458,953,489.21
State, County and Municipal Deposits	6,744,805.01	1,852,484.66	....	8,597,289.67
Other Liabilities	3,081.601.04	423,315.12	5,940,712.85	9,445,629.01
Totals	$253,955,760.05	$341,234,662.55	$11,262,413.44	$606,452,836.04

Abstract of reports of National Banking Associations of San Francisco (9), Los Angeles (9) and the rest of the State (151), showing condition at close of business, January 31, 1910, as reported to the Comptroller of the Currency.

RESOURCES.		
Loans and Discounts, Overdrafts—		
California	$64,908,536.04	
Los Angeles	35,102,368.25	
San Francisco	69,320,049.87	$169,330,954.16
Total U. S. Bonds and Premiums—		
California	$12,627,528.44	
Los Angeles	5,850,989.95	
San Francisco	16,961,380.56	35,439,898.95
Other Bonds and Securities—		
California	$13,767,280.59	
Los Angeles	4,703,434.22	
San Francisco	7,635,621.71	26,106,336.52
Bank Premises, Furniture and Fixtures—		
California	$4,359,363.84	
Los Angeles	756,037.54	
San Francisco	3,053,053.11	8,168,454.49
Due from Banks Not Reserve Agents—		
California	$ 4,300,956.04	
Los Angeles	5,815,058.46	
San Francisco	17,539,285.84	87,655,300.34
Due from Reserve Agents—		
California	$14,137.172.96	
Los Angeles	4,158,706.84	
San Francisco	9,205,267.81	27,501,147.61
Cash and Cash Items—		
California	$9,543,370.69	
Los Angeles	9,517,171.77	
San Francisco	13,460,229.09	32,520,771.55
Total resources		$326,722,863.62

LIABILITIES.

Capital Paid Up—		
California	$14,882,800.00	
Los Angeles	5,350,000.00	
San Francisco	17,750,000.00	$ 37,982,800.00
Surplus and Undivided Profits—		
California	$ 8,298,111.23	
Los Angeles	5,350,273.77	
San Francisco	11,966,430.90	25,614,815.90
Circulation—		
California	$11,325,230.00	
Los Angeles	4,995,490.00	
San Francisco	14,820,532.50	31,141,252.50
Due to Banks—		
California	$ 8,928,323.12	
Los Angeles	12,540,447.43	
San Francisco	42,709,536.13	64,178,306.68
United States Deposits—		
California	$ 225,823.81	
Los Angeles	45,244.32	
San Francisco	509,090.03	780,158.16
Due Other Depositors—		
California	$77,712,362.81	
Los Angeles	37,115,362.49	
San Francisco	49,397,866.26	164,225,591.56
Liabilities Not Otherwise Stated—		
California	$ 2,271,557.63	
Los Angeles	506,940.02	
San Francisco	21,432.17	2,799,938.82
Total Liabilities		$326,722,863.62

Bank Deposits. The exhibit of balances of deposits in State Banks as of November 16, 1909, as shown in the tables, was as follows:

Balance of State Bank deposits—		
326 commercial banks	$163,434,964.00	
242 savings banks	301,737,454.28	
14 trust companies	2,478,359.60	$467,650,777.88
Balance of 169 National Banks		164,944,787.70
Total deposits		$632,595,565.58

UNITED STATES MINT.

Clearing House Exhibit. Clearing house statistics for the year ended December 31st are of much significance when compared with previous years and show that business has about resumed its normal volume and evidences a healthy increase over the last previous year.

SAN FRANCISCO CLEARING HOUSE EXHIBIT FOR 1906 TO 1909 COMPARED.

Month.	1906.	1907.	1908.	1909.
January	$185,519,862.09	$204,512,323.10	$ 147,763,112.04	$ 152,619,297.49
February	156,271,911.56	194,294,366.93	128,006,385.32	130,678,893.61
March	199,665,648.33	200,558,251.65	133,514,197.29	166,507,616.37
April	*107,847,591.36	198,035,735.38	140,364,763.08	159,814,592.42
May	**50,620,020.87	188,809,919.71	130,439,997.35	149,899,254.71
June	132,615,554.48	168,591,327.38	137,096,068.98	159,677,992.57
July	163,268,204.46	182,833,805.76	153,112,317.72	171,491,284.76
August	188,465,609.49	183,343,978.10	148,557,682.70	157,266,688.22
September	185,499,838.13	169,804,815.37	149,375,975.70	171,178,976.74
October	206,989,793.02	201,241,688.01	170,825,027.47	179,551,244.22
November	218,367,350.77	117,528,161.48	154,689,236.62	187,562,498.94
December	203,269,394.90	124,329,252.93	163,397,085.81	193,624,230.01
	$1,998,400,779.46	$2,133,883,625.80	$1,757,141,850.08	$1,979,872,570.06

*14 days. **21 days.

HALL OF RECORDS.

Gutted but not destroyed—First Public Building rehabilitated after the fire of April, 1906.

VALUES OF PROPERTY IN, AND INDEBTEDNESS OF, EACH COUNTY FOR THE YEAR 1909 AND RATE OF TAXATION.
(STATE RATE, 36.4 CENTS.) Controller's Department State of California

COUNTIES	Classification	Area Square Miles	Value of Real Estate	Value of Improvements on Real Estate	Value of Personal Property Money and Solvent Credits	Value of Railroads as Assessed by State Board of Equalization	Grand Total Value of All Property	Total County Indebtedness	Total State and County Rate of Taxation Each $100
Alameda	3d Class.	840	$ 120,278,427	$ 64,127,651	$ 22,332,253	$ 3,774,219	$ 210,512,357	....	$1.16 – $1.56
Alpine	57th "	575	237,355	228,509	47,560	....	513,444	$ 16,020.00	2.25
Amador	35th "	568	3,061,743	1,710,348	589,028	184,472	5,545,591	....	1.52 – 2.00
Butte	23d "	1,765	11,845,365	4,316,010	3,625,710	2,104,334	21,891,419	38,000.00	1.65 – 2.05
Calaveras	33d "	990	3,356,435	1,913,610	853,060	340,216	6,463,321	....	2.15
Colusa	42d "	1,202	9,215,445	1,275,440	1,702,340	799,313	12,992,538	....	1.20 – 1.60
Contra Costa	19th "	750	15,392,985	7,158,440	6,676,325	3,244,658	32,472,408	161,000.00	1.10 – 1.50
Del Norte	55th "	1,546	3,425,137	233,970	298,028	....	3,957,135	....	1.25 – 1.65
El Dorado	40th "	1,891	3,034,390	1,206,430	790,184	727,512	5,758,516	....	1.60 – 2.00
Fresno	7th "	5,940	34,030,598	14,222,247	9,420,681	6,136,295	63,809,821	....	1.18 – 1.56
Glenn	47th "	1,248	8,864,276	860,860	1,615,057	1,328,772	12,668,965	15,000.00	1.95 – 2.35
Humboldt	11th "	3,507	21,884,106	4,032,660	3,433,670	....	29,350,436	6,000.00	1.40 – 2.00
Imperial	36½th "	4,140	5,291,314	656,896	1,219,936	2,353,438	9,521,584	....	1.75 – 2.15
Inyo	53d "	10,224	1,987,685	1,274,250	815,990	407,970	4,485,895	55,000.00	2.00 – 2.30
Kern	26th "	8,159	18,773,995	7,715,731	11,642,368	6,052,068	44,184,162	265,887.50	1.05 – 1.35
Kings	37th "	1,257	7,468,658	2,006,784	2,033,661	1,565,807	13,074,910	....	1.15 – 1.55
Lake	45th "	1,332	2,306,429	808,135	510,426	....	3,624,990	37,000.00	1.80 – 2.30
Lassen	51st "	4,750	4,002,039	658,991	1,261,126	515,177	6,437,333	....	1.20 – 1.80
Los Angeles	2d "	3,958	332,008,566	149,629,151	103,845,177	8,396,473	593,879,367	1,061,000.00	.90 – 1.45
Madera	44th "	2,140	5,380,665	827,350	1,408,283	2,016,629	9,632,927	....	1.80 – 2.20
Marin	29th "	516	10,892,575	5,360,305	1,621,837	1,478,764	19,353,481	71,000.00	1.16 – 1.55
Mariposa	49th "	1,580	1,473,052	355,248	364,490	269,525	2,462,315	1,000.00	2.50
Mendocino	14th "	3,460	9,871,109	2,207,158	2,358,676	1,099,214	15,536,157	75,000.00	1.27 – 1.77
Merced	39th "	1,968	11,575,041	2,180,614	2,498,376	3,432,408	19,686,439	80,000.00	1.45 – 2.00
Modoc	48th "	4,097	3,527,618	713,163	1,367,433	113,878	5,722,092	....	1.40 – 1.70
Mono	56th "	2,796	584,650	210,025	459,010	62,015	1,315,700	....	2.00
Monterey	16th "	3,450	16,892,959	4,707,960	3,433,602	3,227,462	28,261,983	83,200.00	1.30 – 1.80
Napa	27th "	800	6,861,635	5,368,165	2,628,735	1,429,473	16,288,008	....	1.38 – 1.74
Nevada	21st "	958	2,968,180	2,876,425	1,060,425	1,202,649	8,107,679	....	2.00 – 2.50
Orange	15th "	780	17,587,852	7,111,650	4,519,653	2,717,482	31,936,637	55,000.00	.90 – 1.20
Placer	28th "	1,484	5,187,475	2,661,835	974,915	3,933,167	12,757,392	24,000.00	1.475 – 1.875
Plumas	50th "	2,361	4,166,473	621,695	698,575	209,000	5,645,747	135,100.00	2.00
Riverside	20th "	7,008	13,596,377	9,708,741	2,854,976	4,509,791	30,669,885	150,000.00	1.15 – 1.75
Sacramento	5th "	1,007	33,620,410	13,855,810	8,226,190	2,596,122	58,298,532	1,698,125.00	2.00 – 1.92
San Benito	43d "	1,476	4,328,180	1,213,200	1,285,220	428,545	7,255,145	39,000.00	1.62 – 1.95
San Bernardino	10th "	20,160	18,500,904	11,439,998	2,797,893	12,641,077	45,379,872	....	1.15 – 1.60
San Diego	9th "	4,660	26,127,958	5,005,385	4,182,976	2,164,984	37,481,203	600,000.00	1.40 – 2.00
San Francisco	1st "	42	311,486,156	135,272,311	92,334,598	394,282	539,487,347	12,152,300.00	1.964
San Joaquin	8th "	1,370	27,454,406	11,340,452	7,164,043	4,603,249	50,592,150	290,000.00	1.20 – 1.576
San Luis Obispo	25th "	3,500	9,229,528	2,856,976	3,172,162	1,908,799	17,167,465	102,000.00	1.45 – 2.00
San Mateo	32d "	470	17,256,495	6,851,485	2,149,545	817,604	27,075,129	190,000.00	1.15 – 1.65
Santa Barbara	17th "	2,450	16,243,490	6,775,293	6,118,660	2,970,915	32,108,358	....	1.40 – 1.75
Santa Clara	4th "	1,355	42,285,447	20,904,273	6,718,631	2,094,139	72,002,490	300,000.00	1.20 – 1.60
Santa Cruz	18th "	425	11,359,278	5,234,790	2,240,978	903,975	19,739,021	....	1.30 – 1.90
Shasta	22d "	4,050	8,076,805	3,588,600	1,465,170	2,774,787	15,906,362	13,000.00	1.50 – 1.90
Sierra	54th "	910	1,341,800	521,485	291,905	202,262	2,357,456	....	1.75 – 2.25
Siskiyou	24th "	6,078	9,464,625	3,744,494	2,391,250	2,811,973	18,412,339	....	1.35 – 1.75
Solano	12th "	828	12,382,544	5,333,052	2,556,385	1,760,361	22,032,342	....	1.60 – 2.00
Sonoma	6th "	1,540	19,144,660	9,746,900	4,336,885	2,976,776	36,205,221	280,000.00	1.40 – 1.80
Stanislaus	30th "	1,456	13,009,060	3,502,610	2,874,625	2,856,217	22,242,512	1,678.00	1.10 – 1.50
Sutter	46th "	611	4,637,025	1,023,175	899,435	1,122,439	7,652,074	....	1.30 – 1.70
Tehama	34th "	3,200	7,297,625	2,118,210	2,216,500	1,778,044	13,410,379	3,000.00	1.77 – 2.15
Trinity	52d "	3,276	2,226,027	340,609	314,694	....	2,881,330	....	2.25
Tulare	13th "	4,935	25,326,556	7,144,843	4,075,079	4,694,748	41,241,226	....	1.00 – 1.30
Tuolumne	38th "	2,292	4,179,050	2,748,095	688,095	479,600	8,094,840	....	1.35 – 1.90
Ventura	36th "	1,850	15,058,008	2,842,670	4,288,042	2,522,522	24,711,242	....	1.05 – 1.40
Yolo	31st "	1,017	13,457,928	3,084,345	2,434,370	2,046,238	21,022,881	....	.95 – 1.35
Yuba	41st "	625	3,678,725	1,634,515	1,165,320	900,434	7,378,994	....	2.30 – 2.70
Totals		148,695	$1,293,703,348	$657,070,073	$365,800,850	$122,082,273	$2,438,656,544	$17,998,310.50	

Note.—Where two rates of taxation are given, the lesser rate is that levied upon property situate within the limits of incorporated cities or towns, such property being

GENERAL SUMMARY AND COMPARATIVE TABLE OF SHIPMENTS OUT OF STATE BY RAIL AND BY SEA, OF FRUITS, WINE, BRANDY AND VEGETABLES FOR SIXTEEN CONSECUTIVE YEARS.

Tons of 2,000 Pounds.

Kinds.	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909
Green Deciduous Fruits	90,692.2	66,254.8	57,638.3	72,350.2	69,732.2	96,943.6	91,176.5	93,673.7	100,390.9	101,198.7	73,983.6	115,083.6	113,679.0	106,066.0	161,224.0	203,275
Citrus Fruits	58,964.0	115,825.5	99,156.0	98,547.0	180,658.9	131,916.8	226,546.6	323,871.4	225,668.8	299,623.4	385,747.6	454,083.4	383,418.9	413,696.1	399,094.0	475,959
Dried Fruits	51,828.2	61,386.4	48,522.8	75,159.7	76,662.7	86,925.3	90,052.8	106,987.1	151,944.5	149,531.1	156,769.3	118,479.3	112,176.9	184,821.6	133,846.0	154,756
Raisins	46,954.4	46,390.1	34,434.6	39,065.8	47,796.3	36,008.7	36,047.0	43,314.0	47,575.2	39,963.4	54,134.7	32,634.7	42,457.3	*	*29,601.0	61,584
Nuts	3,953.5	3,234.7	4,972.6	5,808.6	5,815.8	6,608.4	6,518.4	8,462.4	10,918.9	9,377.4	9,810.5	7,610.5	5,131.5	7,198.0	10,887.5	12,438
Canned Fruits ...	60,352.6	41,395.5	45,546.9	73,464.7	52,219.7	75,240.0	75,556.9	83,229.1	80,634.8	94,204.8	86,077.9	91,877.9	77,626.5	104,624.6	†85,135.0	†71,223
Raw Vegetables ...	....	....	....	....	....	....	....	....	....	....	....	....	....	....	93,500.8	86,014
Wine and Brandy..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	70,758.2	75,656
Carloads 10 Tons Each.																
Carloads Fruit by rail and sea ...	31,274.4	33,547.2	29,026.7	36,439.6	43,288.6	43,364.3	52,901.5	65,953.8	61,713.3	69,689.8	76,652.4	81,976.9	73,449.0	81,640.7	82,178.0	101,206
Carloads Vegetables by rail and sea..	4,276.6	3,613.6	1,130.6	4,243.8	3,045.6	2,613.6	4,367.8	8,371.7	6,130.2	7,839.2	4,428.6	5,961.0	8,982.0	4,808.2	9,350.0	8,978
Carloads Wine and Brandy, by rail and sea	7,663.5	8,056.8	7,609.0	6,897.8	9,014.0	8,713.9	9,067.3	8,605.3	8,868.2	9,733.2	10,148.8	10,641.8	8,146.9	8,850.5	7,075.8	10,506
Carloads Fruit, Vegetables, Wine and Brandy, by rail and sea	43,624.7	45,257.4	38,254.0	48,072.0	56,149.6	55,482.5	66,797.8	83,731.9	77,538.1	88,084.8	92,052.7	99,409.8	90,577.9	95,299.4	98,603.8	120,690

*All shipments of raisins by rail and by sea are included in dried fruits in 1907 and some in 1908.

†Includes shipments of canned vegetables. The pack of canned fruits and vegetables for 1909 are given on pages 19 and 21.

Not included in the above table were 35 carloads of pickled olives and 28 carloads of olive oil, which make the total of shipments 120,753 carloads of 10 tons each, which is 22,150 more carloads of 10 tons each than the highest previous year, 1908.

Dairy and poultry products, fresh and canned vegetables, shipped from this port by sea and not included above, reach a value of over $1,500,000.

ORCHARD AND VINEYARD.

Citrus Fruits. The season closed October 31, 1909, eclipsed all previous records for citrus fruit shipments, 41,592 carloads, over 15,000,000 boxes, being sent to market outside the state, nearly 8,000 carloads more than in any previous year. The bulk of these shipments, 31,895 carloads of oranges and 6,196 carloads of lemons, went from south of Tehachapi. The balance, 2,501 carloads, were sent from the San Joaquin and Sacramento Valley sections. The Tulare district sent 1,821 carloads of oranges and 150 carloads of lemons. The northern shipments made up the rest.

Fresh Fruit. The fruit distributing associations and others furnish statistics of shipments of deciduous fruits to Eastern markets for the year 1909, as given in table herewith.

As the varieties are shown, they add to the value of the tables of shipments. The figures are for actual carloads without regard to tons in a car. The minimum fixed by the railway companies now is 15 tons, but a carload is often 30 tons. Other tables in the report retain the original 10-ton unit. As an illustration, the tables on a preceding page show 16,122 carloads of fresh fruit for 1908, while the Fruit Association's table gives the number at 12,917 cars. An apparent discrepancy occurs in using actual carloads in one instance and the 10-ton unit in the other.

SHIPMENTS FROM NORTH OF TEHACHAPI.

Varieties.	1904.	1905.	1906.	1907.	1908.	1909.
Cherries	209	79	150	98	208¼	250
Apricots	97	279	16	71	231¾	210
Peaches	559	1946	584	699	1980¼	2599
Plums and Prunes	1053	1391	1220	1039	1763	1526
Pears	2186	1013	1513	1039	2701½	2638
Grapes	1541	1602	2052	3460	3816¼	5880
Apples	71	1761	770	1085	2216	2188
*Miscellaneous						19
	5716	8071	6305	7491	12917	15280

*Includes quinces, persimmons and figs previous to 1909 not counted separately.

While the above exhibit gives but 2,188 cars as the total shipment of apples from the State for the year, the Chamber of Commerce of Watsonville reports shipment of 3,200 carloads of apples from the Pajaro Valley alone, a considerable portion of which were consumed in the State.

Dried Fruits. Nearly all kinds of deciduous fruits are dried for the market, but prunes, peaches and apricots are the most important. The dried output of all, except figs, varies largely according to the season, the demand of the Eastern market for fresh fruit, and the prices offered by the canners.

OUTPUT OF DRIED FRUITS, NOT INCLUDING PRUNES AND RAISINS, 1900-1909, IN TONS.

Year	Peaches	Apricots	Apples	Pears	Plums	Nectarines	Grapes	Figs
1900	17,170	14,000	3,150	7,275	1,950	435	240	2,000
1901	14,755	7,776	3,225	3,290	1,725	317	180	3,260
1902	25,210	18,762	4,875	2,625	1,280	455	188	3,625
1903	16,075	10,500	1,800	2,325	1,435	317	205	3,000
1904	11,500	8,500	1,500	1,750	1,150	210	170	2,850
1905	17,500	19,250	3,250	1,750	930	185	193	3,625
1906	11,250	3,250	2,750	3,500	1,100	170	200	3,375
1907	12,000	1,500	1,500	500	750	137	188	3,000
1908	22,500	19,000	3,000	1,200	1,000	350	1,500	3,000
1909	20,000	14,500	2,500	1,250	500	375	325	3,500
Average for ten years	16,796	12,000	2,755	2,547	1,257	295	339	3,126

Prunes. Of dried fruits, prunes come next in importance to raisins. Prunes are grown in many counties throughout the State; the largest center of this industry is the Santa Clara Valley. A good many prunes are grown in the San Joaquin and Sacramento Valleys and also in Contra Costa and Sonoma Counties.

The output varies largely in different years. The most reliable figures place the output for 1909 at 77,500 tons, or 36 per cent, more than the average for the six preceding years.

CALIFORNIA PRUNE OUTPUT.

Year	Tons	Year	Tons
1897	48,840	1904	67,500
1898	45,210	1905	37,500
1899	56,863	1906	90,000
1900	87,000	1907	40,000
1901	40,800	1908	25,000
1902	98,500	1909	77,500
1903	82,500		

Canned Fruit. The canning of fruit and vegetables is an important industry in California, and the yearly output of canned goods is very large.

The aggregate number of cases of all kinds of fruit and berries canned in 1909 was nearly a million and three quarter cases less than in 1908, but was larger than for any previous year. The increased demand for fresh fruit at home and for shipping can in a measure satisfactorily account for this.

The following exhibit by courtesy of the "California Fruit Grower" is made of the various kinds of fruit canned in 1908 and 1909.

Fruits—	1908 Cases		1909 Cases	
	Nos. 2½ and 3 lbs. (all grades)	No. 8 (gallons) (all grades)	Nos. 2½ and 3, etc. (all grades)	No. 8 (gallons) (all grades)
Apples	6,100	31,600	7,375	62,600
Apricots	1,035,600	125,650	563,660	100,450
Blackberries	43,250	44,300	22,625	27,330
Cherries, Royal Ann	100,700	5,000	110,250	7,450
Cherries black	39,200	1,525	16,700	1,375
Cherries, white	52,100	3,630	51,640	4,520
Grapes	37,620	7,925	20,105	4,365
Loganberries	1,029	1,371	3,204	808
Nectarines	1,502	171	....	14
Pears	611,500	29,050	466,530	34,910
Peaches, free	838,400	136,950	401,800	145,375
Peaches, cling	1,240,350	87,260	779,725	109,260
Plums	209,300	30,525	75,450	13,975
Raspberries	5,365	585	3,375	215
Strawberries	4,960	820	9,690	890
Other fruits	272	1,053	700	635
Total fruits (cases)	4,227,248	507,415	2,532,829	514,172
Grand total fruits		4,734,663		3,047,001

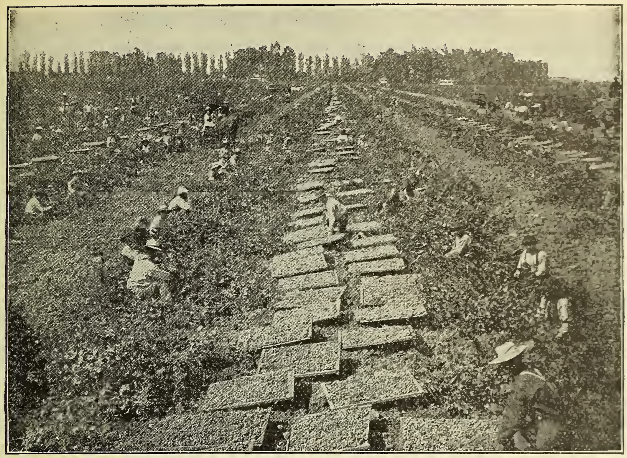
The following table shows the production during the last nine years:

CANNED FRUITS.

Year	Cases	Year	Cases
1901	2,677,082	1906	3,109,225
1902	2,252,790	1907	2,982,985
1903	2,783,504	1908	4,734,663
1904	2,840,614	1909	3,047,001
1905	3,283,296		

The Vineyard. California is easily the most important factor in viticulture in the United States, and grape culture is one of the most widespread industries in the State, 275,000 acres being devoted to the industry of which 150,000 acres are in wine grapes, 85,000 acres in raisin grapes and 40,000 acres in table grapes.

All varieties of European grapes are included, besides many California developments therefrom.



PICKING AND CURING RAISINS.

The annual value of the grape product, including table grapes, dried grapes and raisins, and wine and brandy, aggregates over $25,000,000. The shipments of table grapes out of the State for 1909 amounted to 5,880 carloads.

Raisins. The center of the raisin industry is in Fresno County, although raisins are produced in other parts of the State. The crop varies from year to year, as the appended table shows; that for 1909 exceeds the average of the six preceding years by nearly 19,000 tons

CALIFORNIA RAISIN CROP.

Year	Tons	Year	Tons
1897	46,852	1904	37,500
1898	40,365	1905	43,750
1899	35,784	1906	47,500
1900	47,167	1907	60,000
1901	37,125	1908	60,000
1902	54,375	1909	70,000
1903	60,000		

Wine and Brandy. The wine and brandy product of the State for 1909 shows an aggregate increase of 8,100,000 gallons over 1908, and exceeds all previous years.

The production of sweet wine was the greatest in the history of the industry by 2,500,000 gallons, and the dry wine output was far above the average and has been exceeded only three times in previous years.

The following table shows the product of wine and brandy for the last thirteen years:

WINE AND BRANDY.

Year	Dry Wines Gals.	Sweet Wines Gals.	Brandy Gals.
1897	28,736,400	5,197,500	1,442,468
1898	10,750,000	7,779,000	1,250,000
1899	15,103,000	8,330,000	1,699,035
1900	16,737,260	6,940,300	3,256,513
1901	16,473,731	6,270,300	1,688,482
1902	28,224,146	14,835,146	4,564,171
1903	21,900,500	12,670,356	1,972,000
1904	15,589,342	13,571,856	4,420,820
1905	20,000,000	10,700,000	1,250,000
1906	26,000,000	15,000,000	1,345,000
1907	27,500,500	15,500,000	1,500,000
1908	22,500,000	14,750,000	1,750,000
1909	27,000,000	18,000,000	2,000,000

After 1904 brandy used in fortifying sweet wines was excluded.

FRESH AND CANNED VEGETABLES.

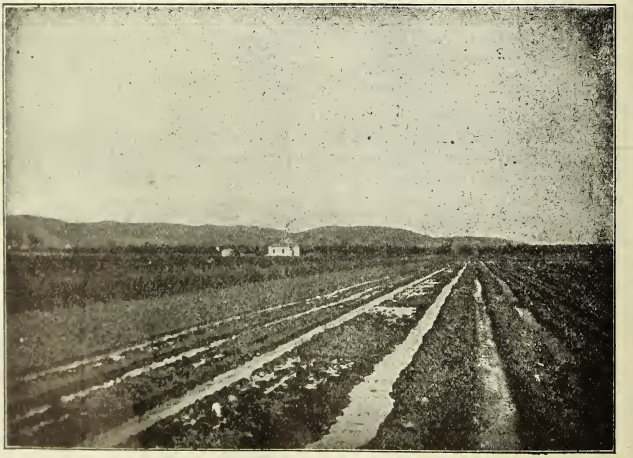
Fresh vegetables shipped out of the State by rail and sea amounted to 8,978 carloads of ten tons each, for the year, 372 carloads less than the highest year, 1908. The vegetables grown in the central and northern parts of the State, with the exception of asparagus, are mainly consumed in the home market, and shipments for 1909 were largely from the southern portion. Shipments from south of Tehachapi, which are included in the table of shipments for the State, are reported as follows by the Los Angeles Chamber of Commerce:

Kinds.	Total Value.
Celery	$1,600,000
Cabbage	
Cauliflower	
Tomatoes	
Onions	
Potatoes	
Cantaloupes and other melons	2,000,000
Total	$3,600,000

1908 was a poor year for melons and the growers had small returns from shipments. 1909 was, however, the banner year.

From the "California Fruit Grower" the following exhibit shows the kinds of vegetables canned in 1908 and 1909:

Vegetables—	1908 Cases		1909 Cases	
	Nos. 2½ and 3, etc. (all grades)	No. 8 (gallons) (all grades)	Nos. 2½ and 3, etc. (all grades)	No. 8 (gallons) (all grades)
Asparagus	238,085	335	410,335	630
Beans	38,610	1,155	10,490	1,945
Peas	81,770	6,740	88,360	15,650
Tomatoes	1,014,200	92,675	567,300	104,960
Other vegetables	21,780	6,535	38,350	4,700
Total vegetables (cases)	1,394,445	107,440	1,114,835	127,885
Grand total vegetables		1,501,885		1,242,720



IRRIGATING STRAWBERRIES.

FRESH FRUITS AND VEGETABLES.

No other State in the Union and few other countries in the world offer such a variety of fresh orchard and garden products throughout the year as does California. In one or another section of the State, fresh fruits and vegetables of superior quality are to be had in every month of the twelve. "The Garden Calendar," by Prof. E. J. Wickson, shows that as far north as Red Bluff, conditions admit of planting for market eight kinds of vegetables in November, five in December, ten in January, eleven in February, fourteen in March, eighteen in April, and every month has something in the list, the smallest being August with four kinds.

The following shows when the various orchard, vineyard and garden products are to be had fresh for the general market in California:

FRUITS.

Almonds	September and October.
Apples	July to November.
Apricots	June to August.
Blackberries	June to September.
Cantaloupes	May to October.
Cherries	May to July.
Currants	May and June.
Dewberries	May to July.
Figs	July to November.
Grapes	July to January.
Grape Fruit	All the year.
Guavas	All the year (two crops).
Lemons	All the year.
Limes	All the year.
Loganberries	June to September.
Loquats	May and June.
Mulberries	July to September.
Nectarines	June to August.
Olives	December and January.
Oranges	All the year.
Pears	July to November.
Peaches	July to Christmas.
Persimmons, Japanese	November and December.
Plums	June to September.
Prunes	June to September.
Pomegranates	September to December.
Quinces	October to December.
Raspberries	June to October.
Strawberries	All the year.
Watermelons	July to October.

VEGETABLES.

Asparagus	March to July.
Cabbage	All the year.
Cauliflower	October to June.
Celery	October to June.
Corn	May to October.
Cucumbers	April to November.
Lettuce	All the year.
Melons	May to October.
Onions	All the year.
Peas	All the year.
Potatoes	Two crops. Plant Aug. and Feb.
Radishes	All the year.
Spinach	October to June.
Tomatoes	April to January.

Olives, Olive Oil, etc. Olive culture is one of the oldest fruit industries in the State. The first orchard was planted in San Diego in 1769, and that county is first in production of olives and olive oil, though there are large orchards in other counties, and every year adds to the number of trees. There are thirty-eight counties reporting over 1,000 trees each, ranging from Shasta on the north to the Mexican line on the south. The number of trees, as reported by county statisticians and other authorities, is about 2,000,000.

Statistics of this industry are difficult to obtain. It has not heretofore been very attractive from a remunerative point of view, but the removal of competition with adulterated oil by the Pure Food regulations has given it quite an impetus. Estimates of the production for 1909 range from 650,000 to 900,000 gallons of olive oil, and from 250,000 to 800,000 gallons of pickled olives.

Honey. While honey is produced for the market in all of the principal valleys, the great bulk of the commercial product comes from the San Joaquin Valley and the counties south. The crop for 1909 was the record crop and about double the average.

CALIFORNIA HONEY CROP. (Comb and Extracted.)

The estimates of the honey product for several years are:

Year.	Pounds.	Year.	Pounds.
1899	2,822,000	1905	9,500,000
1900	2,208,000	1906	5,250,000
1901	8,112,000	1907	8,700,000
1902	5,125,000	1908	5,250,000
1903	8,400,000	1909	11,532,000
1904	7,000,000		

THE LAND OF HONEY.

Silk. The culture of silk, which attracts little attention, is increasing slowly in California, and though not yet on a commercial basis is likely to become a good industry. The climate in California is admitted to be adapted to the raising of silk. The season for production extends over a period of six or eight months, while in Europe it lasts only as many weeks.

Nuts. The production of almonds fluctuates greatly and the crop for 1909, though much less than that of 1908, was still above the average. The production of walnuts is more regular, and the crop for the year gave good returns.

ALMONDS AND WALNUTS.

Year	Almonds	Walnuts
	Tons (2,000 lbs.)	
1895	825	2310
1896	1605	4115
1897	2375	3985
1898	450	5650
1899	2320	5530
1900	2740	5430
1901	1560	6910
1902	3270	8520
1903	3200	5500
1904	800	7590
1905	2125	5750
1906	900	6125
1907	750	8250
1908	3000	8000
1909	1650	7500

At an average value of $300 per ton, the aggregate of these crops is $2,745,000.

DAIRY INDUSTRY.

The dairy industry is year by year more extended and important. Comparative statistics of butter production of the State for a series of years beginning with 1896 show the importance of this industry, and yet the supply falls so far short of the demand as to necessitate the bringing in of large quantities of butter from other states.

The season, as covered by the report of the State Dairy Bureau, ends September 30th of each year.

Despite the persistent efforts of that bureau some creameries and large producers in a number of counties failed to make any report of their production for the year 1909.

The figures gathered by the Bureau have been supplemented by returns made to this Board from other reliable sources, but the total production given for the year probably falls short of the actual output.

Scientific Dairying. Scientific dairying has largely superseded the old methods in California, as the following table, showing the number of pounds of butter produced in the State by the creamery method and the old method for seven years ending October 1, 1902, demonstrates:

Year	Creamery Method	Old Method	Totals
1896	10,097,323	21,508,117	31,605,440
1897	10,866,646	17,811,795	28,678,439
1898	10,410,479	13,280,549	23,691,028
1899	12,725,814	12,143,270	24,869,084
1900	16,486,695	12,296,164	28,782,859
1901	19,017,512	10,713,370	29,730,882
1902	21,593,021	9,935,741	31,528,763

A DAIRY HERD FEEDING ON ALFALFA.

Since 1902 the growth is indicated in the following exhibit:

Year.	Pounds.
1903	34,676,311
1904	35,636,909
1905	41,961,047
1906	44,044,578
1907	44,599,211
1908	48,469,585
1909	49,595,869

California is now well to the front as a dairy State. The increase is mostly in counties where irrigation is practiced.

IRRIGATION AND DAIRYING.

As showing the effect of irrigation on the dairy interests the following exhibit from the reports of the State Dairy Bureau, giving the product of butter in pounds by principal counties, is instructive:

Counties	1905	1906	1907	1908	1909
Fresno	1,619,746	2,644,897	2,786,817	3,315,926	3,721,262
Kern	200,936	334,070	372,569	521,495	545,900
Kings	1,099,400	1,677,272	1,960,364	2,419,651	3,432,879
Merced	1,563,771	2,361,528	2,469,726	2,831,846	1,396,865
Sacramento	1,508,293	1,617,633	1,060,098	1,277,771	1,592,138
San Joaquin	1,015,568	1,641,374	1,625,538	1,605,152	2,350,000
Stanislaus	1,564,749	2,759,582	3,615,469	4,113,866	4,155,701
Tulare	1,497,762	2,075,729	2,522,707	2,729,377	2,307,238
Yolo	831,185	1,387,210	726,532	944,268	807,787
Totals	10,901,410	16,499,295	17,139,820	19,759,352	20,309,770
Humboldt	4,289,739	4,235,927	4,390,815	4,495,041	4,715,998

While irrigation has been a most important factor in the increase of butter production as shown above, Humboldt County, with its abundant rainfall rendering irrigation unnecessary, still holds the position of the banner county of the State in butter output. We append the figures for Humboldt to the table for comparison.

Some of the large butter producing counties in the southern part of the State have fallen off in yield. This is explained by two causes: the rapid increase in population in the cities and the increased consumption of milk and cream. Land south of Tehachapi is being put to other uses and dairymen are moving into the San Joaquin Valley and other localities where opportunities are equally good and land is very much lower in price.

CHEESE PRODUCTION.

Although the State has more than doubled in butter production in ten years ending 1909, the cheese production has not kept pace therewith, though there was a substantial gain for 1909 over the average of previous years.

Out of the fifty-eight counties in the State, twenty-four produced cheese during the year, as compared with twenty-two during the previous year. Monterey, Santa Clara and Sacramento, in the order named, are the leading counties, and produce more than one-third of the total output of the State. Comparing the totals for the past twelve years we have the following showing:

Year.	Pounds.	Year.	Pounds.
1897	6,399,625	1903	7,218,639
1898	5,148,372	1904	6,133,898
1899	5,294,938	1905	6,020,672
1900	4,989,960	1906	6,418,480
1901	5,681,366	1907	5,928,942
1902	6,503,441	1908	6,162,514
		1909	5,931,194

Large quantities of butter and cheese continue to come from the East, notwithstanding the superior advantages presented in this State for enlarging this branch of farming and for creamery development.

VALUE OF DAIRY OUTPUT.

A comparative estimate of the value of the dairy products of recent years is shown in the following:

1906-1907	
Value of 44,599,211 pounds of butter	$12,710,778
Value of 5,928,942 pounds of cheese	830,051
Value of 177,193 cases of condensed milk	653,615
Value of milk and cream condensed	7,460,000
Value of by-products	1,144,000
Value of calves from dairy cows	1,766,000
Total	$24,564,441

1907-1908	
Value of 48,468,585 pounds of butter	$13,474,366
Value of 6,162,514 pounds of cheese	801,126
Value of 100,069 cases of condensed milk	375,259
Value of milk and cream consumed	7,555,000
Value of calves produced on dairy farms	1,760,000
Value of skim milk from butter production	1,258,400
Total	$25,224,151

1908-1909	
Value of 49,595,869 pounds of butter	$14,989,607
Value of 5,931,194 pounds of cheese	652,393
Value of 87,000 cases of condensed milk	304,500
Value of milk and cream consumed	7,700,000
Value of calves produced on dairy farms	2,400,000
Value of skim milk from butter production	1,285,000
Total	$27,329,400

POULTRY INDUSTRY.

Poultry raising in California is a profitable industry. In a more or less practical way it has been carried on in all parts of the State, but in Sonoma, Sacramento, Colusa, Humboldt and San Benito Counties, and to a less extent in some others, the latest scientific methods are generally practiced with gratifying results. The industry is constantly extending, as the demand for poultry products greatly exceeds the home supply. Turkey-farming, as it is called, is mainly in the grain districts where the fowls can range. Hatching by incubators prevails generally. The largest incubator factory in the world is in Petaluma, Sonoma County. That county has 2,500,000 laying hens. One hatchery alone turns out about 100,000 chicks per month, and runs to full capacity most of the year.

POULTRY FARM OF THREE THOUSAND HENS.

The average chicken ranch near Petaluma consists of about five acres, upon which are placed 500 to 3,000 hens. There are, of course, larger ranches which maintain 5,000 to 30,000 chickens. A person should have from $3,000 to $5,000 to equip a chicken ranch and get ready for a profitable business. In case of renting, however, about $1,500 is needed to start the prospective poultryman. The average profit on each hen is about $1.00 per year.

Notwithstanding the remarkable development of the poultry business at Petaluma, the increase is not sufficient to meet the demands of the market. The rapidly expanding population of the State requires the importation of several million dozen eggs each year from Eastern points, and there is no immediate prospect of the home supply overtaking the market. This fact insures the success of all practical poultrymen who engage in the industry in California.

Petaluma is the principal shipping point of Sonoma County, and the market business done from that point, and its growth, is reflected in the following tables, which show a gain for 1909 over 1908, in egg shipments, of 1,846,677 dozen, and in poultry of 36,882 dozen.

SHIPMENTS OF EGGS AND POULTRY FROM PETALUMA.

	Eggs. Dozen.	Poultry. Dozen.
1903	3,407,333	32,535
1904	3,493,321	33,286
1905	3,837,061	39,392
1906	4,334,321	39,938
1907	4,422,968	59,198
1908	5,312,804	83,136
1909	7,159,481	120,018

The above figures represent actual shipments of eggs to market. It is but fair to say that over one and a quarter million dozen eggs are produced which are used for hatching and home consumption. These added to the above, bring the total production of the Petaluma district up to near eight and one-half million dozen, or over 100,000,000 eggs.

The daily food requirements for poultry in the Petaluma district for the year aggregated over 400 tons, or 800,000 pounds, of which wheat, corn, barley, bran and middlings form the largest part, viz.: about 340 tons.

The monthly shipments of eggs and poultry from Petaluma for 1909 (as given by the Petaluma Poultry Journal) were:

	Eggs. Dozen.	Poultry. Dozen.
January	308,504	2,376
February	607,816	2,557
March	1,066,232	4,066
April	897,796	9,333
May	769,896	10,401
June	839,252	15,866
July	665,441	16,336
August	517,788	17,756
September	397,490	14,486
October	352,468	9,361
November	407,116	10,009
December	329,682	7,201
Totals for year	7,159,481	120,018
Santa Rosa shipped	1,436,160	
Other points in Sonoma County	2,500,000	
Total for the county	11,095,641	
Total south of Tehachapi	9,000,000	
Total other counties	14,506,258	
Total for State	34,601,899	

WHITE LEGHORNS.

Fishing Industry. According to the statistics issued by the Bureau of Fisheries in 1905 (the latest), the number of persons engaged in the food-fishing industry in California was 5,530. Capital invested was $3,764,056, and the aggregate catch amounted to 52,109,654 pounds, with a value to the fishermen of $2,523,141, or about $5,000,000 in the market.

Over-fishing and destruction of spawning beds through lumbering and placer mining caused a steady decrease in supply of salmon in the Sacramento Basin. Through the work of the Federal and State Fish Commissioners, however, the rivers have been restocked and now there are more salmon in the Sacramento River than ever before.

The State maintains seven hatcheries, at one of which, the Sisson hatchery, more salmon fry are hatched than at any other hatchery in the world. There is also one hatchery and two egg-collecting stations under Federal supervision. Over 100,000,000 fry of various kinds of food and game fishes are deposited in the streams yearly. Over 30,000,000 pounds of the fish taken for the market are caught in the waters of the Bay Counties and the Sacramento River.

One hundred and thirty-three varieties of food fish are found in the San Francisco markets, including oysters, native and transplanted, and many other varieties of shell-fish.

Farm Animals. The following statistics, taken from the "Crop Reporter" of the Department of Agriculture, for farm animals in California, show the number, average value of the different animals, and the total value. The tables for 1909 as compared with 1908 show increase in numbers of each kind of animals except swine, and an increase in values of all, which makes a total gain of $14,535,000.

The number of sheep is still less than the average of previous years. This is ascribed to the extension of the forest reserve and restriction of grazing areas. About 50,000 head of cattle, 150,000 sheep, and 50,000 hogs are slaughtered for market in the State each month, a part of which come from adjoining states. Enlarged outside markets and increasing home demand augur well for the future of the stock-growing industry.

ALFALFA MAKES FAT HOGS.

	December 31, 1906.			December 31, 1907.		
Kinds.	Number.	Average Price.	Value.	Number.	Average Price.	Value.
Horses	391,680	$92.00	$36,120,721	396,000	$ 94.00	$37,224,000
Mules	80,750	106.00	8,599,875	82,000	113.00	9,266,000
Milch Cows	405,616	35.00	14,196,560	410,000	36.00	14,760,000
Other Cattle	1,167,107	18.00	21,474,767	1,155,000	19.00	21,945,000
Sheep	2,422,423	3.30	8,006,107	2,422,000	3.47	8,404,000
Swine	550,581	7.10	3,909,125	551,000	7.20	3,967,000
Total	5,018,157	....	$92,307,155	5,016,000	....	$95,566,000

	December 31, 1908.			December 31, 1909.		
Horses	412,000	$90.00	$37,080,000	420,000	$105.00	$44,100,000
Mules	83,000	107.00	8,881,000	33,000	122.00	10,126,000
Milch Cows	430,000	36.00	15,480,000	452,000	38.40	17,357,000
Other Cattle	1,155,000	17.50	20,212,000	1,120,000	20.10	22,512,000
Sheep	2,325,000	2.80	6,510,000	2,372,000	3.30	7,828,000
Swine	562,000	6.50	3,653,000	540,000	8.20	4,428,000
Total	4,967,000	....	$91,816,000	4,987,000	....	$106,351,000

Wool. The wool clip for 1909, as given by Mr. E. H. Tryon, of San Francisco, and others, while showing a substantial increase over that for 1908, is less than half of what it was for many years previous to 1895. It has gradually declined in quantity during the last ten years, and for 1907-08 is below that of any previous clips for forty years.

WOOL PRODUCTION OF CALIFORNIA, 1854-1909.

Year.	Pounds.	Year.	Pounds.	Year.	Pounds.
1854	175,000	1873	32,155,169	1892	35,802,930
1855	300,000	1874	39,356,781	1893	33,169,375
1856	600,000	1875	43,532,223	1894	36,968,400
1857	1,100,000	1876	56,550,973	1895	35,856,690
1858	1,428,000	1877	53,110,742	1896	27,195,550
1859	2,378,000	1878	40,862,091	1897	34,882,325
1860	3,055,327	1879	46,903,360	1898	28,063,240
1861	3,721,998	1880	46,074,154	1899	28,332,090
1862	5,990,300	1881	45,076,639	1900	27,750,000
1863	6,268,480	1882	40,529,119	1901	26,900,000
1864	7,923,670	1883	40,848,690	1902	21,000,000
1865	8,949,931	1884	37,415,330	1903	22,000,000
1866	8,532,047	1885	36,561,390	1904	22,000,000
1867	10,288,600	1886	38,509,160	1905	22,000,000
1868	14,232,687	1887	31,564,231	1906	24,000,000
1869	15,413,970	1888	32,569,972	1907	15,000,000
1870	20,072,660	1889	34,008,370	1908	15,000,000
1871	22,187,188	1890	34,854,640	1909	16,000,000
1872	24,255,468	1891	33,183,475		

Note.—"Pulled" wool, 5,000,000 pounds, not included in table.

FIELD CROPS.

Grain. The following table from the records of the U. S. Department of Agriculture shows the yearly production of the four principal grain crops in the State since 1898 and of rye since 1907:

Year	Wheat Bushels 60 lbs.	Barley Bushels 48 lbs.	Corn Bushels 56 lbs.	Oats Bushels 32 lbs.	Rye Bushels 60 lbs.
1898	12,403,700	12,263,461	1,184,040	1,943,304	....
1899	29,666,666	14,046,087	1,536,975	1,845,787	....
1900	20,933,333	19,769,760	1,351,975	1,477,771	....
1901	28,751,500	26,162,780	1,850,793	4,887,374	....
1902	18,759,490	23,489,065	1,839,150	5,148,583	....
1903	14,880,990	21,075,000	1,777,162	5,756,964	....
1904	10,895,216	24,418,604	1,350,000	5,250,000	....
1905	5,660,360	22,094,186	1,204,000	4,735,000	....
1906	8,333,330	26,162,790	1,100,000	4,300,000	....
1907	10,833,330	25,096,666	1,100,000	4,100,000	1,250,200
1908	11,630,000	25,427,000	1,600,000	6,700,000	792,000
1909	11,550,000	31,270,000	1,740,000	6,280,000	842,000

Other Returns of Grain Crops. The yield and values of the principal cereal crops sown for the harvest of 1909, as given by the State Agricultural Society and other authorities, are as follows:

REPORT OF CROPS FOR 1909.

	Crop. Bushels.	Value.
Wheat	10,652,317	$11,824,071
Barley	40,160,131	29,718,496
Oats	8,549,069	5,642,385
Rye	842,000	876,000
Corn	1,740,000	1,583,000
		$49,643,952

It appears from department reports that wheat, formerly the most important agricultural product of the State, has gradually given place to barley, which more than doubled it in value in 1909, and now equals in acreage and exceeds in yield and value all the other grain crops combined.

In the seven years ended in 1906, according to the Year Book of the Department of Agriculture, the acreage in barley increased 60 per cent, the yield 160 per cent, and the value 230 per cent. The increase still continues. The malting qualities of California barley give it a ready market abroad.

Oats are raised, in some parts of the State, more for hay than for threshing, while corn is but little used as food for work animals. Barley has long been the main grain food in California, but of late years oats have come into use to quite an extent.

WHEAT CROPS AND THEIR DISTRIBUTION.

The following table shows the rainfall at San Francisco for a series of years, and the wheat crops of California and distribution in centals:

SEASON	Rain-fall	Crop year	Crop	Exports	Local consumption	Carry over stock	Imports
1888-89	23.86	1889	25,174,940	17,161,280	6,340,000	5,036,220	768,540
1889-90	45.85	1890	18,889,680	17,388,400	6,300,000	1,977,940	1,740,440
1890-91	17.58	1891	21,095,440	16,586,380	6,000,000	2,451,000	1,964,000
1891-92	18.53	1892	20,445,960	13,489,480	6,300,000	5,727,580	1,520,100
1892-93	21.75	1893	19,904,640	11,883,540	6,500,000	7,878,980	1,630,300
1893-94	18.47	1894	14,335,844	11,095,480	7,200,000	6,456,000	768,540
1894-95	25.70	1895	15,730,004	13,613,980	6,800,000	2,930,700	1,168,560
1895-96	21.25	1896	17,452,041	13,452,693	7,000,000	1,990,272	2,060,224
1896-97	23.43	1897	18,351,786	12,907,953	6,800,000	3,388,606	2,754,501
1897-98	9.38	1898	7,341,220	4,259,913	7,000,000	3,585,606	4,115,693
1898-99	16.87	1899	19,462,047	9,455,737	6,860,000	8,615,583	1,883,667
1899-1900	18.47	1900	12,230,516	11,211,648	7,190,000	4,218,718	1,774,267
1900-01	21.17	1901	18,620,263	13,710,220	7,270,000	2,284,174	1,125,386
1901-02	18.98	1902	11,255,698	8,576,530	6,785,000	1,401,910	2,523,595
1902-03	18.28	1903	8,958,599	3,631,899	7,181,500	2,636,430	2,950,320
1903-04	20.59	1904	6,537,131	3,665,370	7,306,660	1,105,539	2,904,008
1904-05	23.45	1905	3,396,216	1,800,922	7,535,920	1,846,878	6,885,073
1905-06	20.42	1906	6,001,439	1,648,493	7,442,000	1,684,878	3,129,723
1906-07	26.17	1907	3,843,090	1,319,995	7,500,000	1,725,547	4,192,265
1907-08	17.35	1908	3,219,110	821,893	8,172,000	1,033,604	5,917,480
1908-09	25.57	1909	4,500,000	(Statistics not yet available.)			

HAY AND FORAGE CROP.

The hay crop of California is one of the most valuable agricultural products, being each year since 1905 worth over $31,600,000. Alfalfa is increasing yearly in acreage and value. From three to five cuttings may be made yearly on irrigated ground, with an aggregate yield of from four to eight tons to the acre.

California grain (cut in the milk) is highly prized for hay and is sent East by the train-load for feeding race-horses. It often yields in value per acre more than if cut for grain, as in 1906 the average value per acre for grain hay was $10.80 as against $8.50 for grain.

Estimates based on returns made by the county statisticians and others give the acreage, yield and value of the hay crop since 1905, as shown below:

	Acreage.	Yield. Tons.	Value.
1905	2,383,165	3,697,373	$31,687,180
1906	2,215,801	4,113,178	32,290,760
1907	2,189,100	4,009,054	32,072,959
1908 (Grain and grass, hay and alfalfa)	1,375,434	3,142,962	32,229,803
1909 (Grain and grass, hay and alfalfa)	....	3,857,315	36,644,973

Full returns for the hay crop of 1909 are not yet available, but partial reports show fair yield, and good prices raise the total value above the average.

Other Field Products. California was conspicuous in the production of potatoes and beans for the year 1909, and prices which obtained during the year made the aggregate return for these products over fourteen million dollars.

The following exhibit gives return for the year in both quantity and value:

	Quantity.	Value.
Potatoes, Irish	7,800,000 bushels	$6,006,000
Potatoes, Sweet	425,000 bushels	380,000
Beans	2,200,000 sks. (100 lb.)	8,000,000
Onions	1,300,000	1,950,000
Field and Garden Seeds, etc.	....	2,250,000
		$19,836,000

Beet Sugar. The Beet-Sugar industry of the State grows yearly in importance. In 1909 California produced over 28 per cent of the total product of the United States, and was second only to Colorado in output.

The existing factories and their locations are as follows:

Spreckels Sugar Co., Spreckels, Monterey County.
Spreckels Sugar Co., Watsonville, Santa Cruz County.
American Beet Sugar Co., Oxnard, Ventura County.
American Beet Sugar Co., Chino, San Bernardino County.
Alameda Sugar Company, Alvarado, Alameda County.
Union Sugar Co., Betteravia, Santa Barbara County.
Los Alamitos Sugar Co., Los Alamitos, Orange County.
Sacramento Valley Sugar Co., Hamilton, Glenn County.
Pacific Sugar Co., Visalia, Tulare County.
Pacific Sugar Co., Corcoran, Kings County.

One plant, the Watsonville, belonging to the Spreckels Sugar Co., was idle during the season of 1909, and the plants of the Pacific Sugar Co., at Visalia and Corcoran, were operated in a small way only. The output of the nine active plants was 126,621 tons, which, at 4 cents per pound, represents $10,129,680. The gain in 1909 over 1908 was 27,000 tons.

The growth of the beet-sugar industry in California is shown in the following exhibit for twenty-two years, beginning with 1888, that being the first year statistics were obtained and published by the State Board of Trade.

BEET SUGAR PRODUCTION OF CALIFORNIA.

Tons of 2,000 lbs.

Year.	Tons.	Year.	Tons.
1888.	1,910	1899.	42,100
1889.	2,457	1900.	30,319
1890.	3,351	1901.	68,700
1891.	5,224	1902.	73,761
1892.	10,761	1903.	65,360
1893.	17,420	1904.	59,147
1894.	18,615	1905.	64,251
1895.	23,827	1906.	94,285
1896.	31,815	1907.	72,889
1897.	35,280	1908.	99,613
1898.	18,086	1909.	126,621

Tobacco Growing. The adaptability of soil and climate to the growing of tobacco has been successfully demonstrated in many sections of the State, though it is not yet grown to any considerable extent.

The peculiar character of the soil rendering fertilizing unnecessary, and the absence of frost during growing season are of interest in the cultivation and very important factors in handling and in curing the crop.

A planting of fifteen acres of Turkish tobacco was made in 1908 in Tulare County, and in both yield and quality the experiment was so encouraging that a much larger acreage was planted for 1909, and further extension is proposed.

Rice. From experiments made in the Sacramento Valley during recent years by the rice expert of the Department of Agriculture, the adaptability of soil and climate to the successful culture of rice has been demonstrated. Two tracts of twenty-five acres each were planted in 1908 in the vicinity of Biggs on black adobe lands. From one planting a yield of 3,000 pounds per acre was harvested. This rice was awarded the gold medal at the Seattle Exposition in 1909.

Mr. W. W. Mackie, of the Bureau of Soils, under whose direction the experiments were made, estimates that there are 600,000 acres of adobe, overflow and "goose" lands in the Sacramento Valley suitable for rice culture when a supply of water can be had.

Experts for the Japanese Government have investigated this district for rice culture and reported favorably on it. Mr. Mackie says: "At the present favorable outlook the rice industry should be successfully established in the Sacramento Valley in the future." The results obtained in 1909 seem to confirm his opinion and promise this remunerative industry to the many already established in California.

Cotton. The adaptability of soil and climate of California to the growing of cotton has been known for some years. Of late, planting has begun on a large scale.

In 1909 over 500 acres were planted in the Imperial Valley, Imperial County, with seeds from Georgia and Texas. The result was most gratifying, an average of over one bale, 500 lbs., to the acre being produced, some 600 bales in all, most of which found a ready market at the California Cotton Mills in Oakland. For 1910 the acreage will be largely increased.

All the cotton produced in California will find a ready home market and probably cause additional factories to be added to the few already in operation in the State.

A number of farmers in the Sacramento Valley also are to experiment in growing Egyptian cotton under direction of Government experts.

Flax and Hemp. The culture of these valuable textile plants has lately received an impetus in several localities that promises important developments.

Hop Crop. The hop crop in California, as elsewhere, varies greatly from year to year, influenced mainly by market prospects. The crop for 1909 according to statistics furnished the California Development Board was 69,688 bales, or 12,892,280 pounds, more than the crop of 1908, but less than the three preceding years.

Owing to excess of supply over demand for 1906 and 1907, the extensive prohibition movement throughout the country, and other causes, the decreased acreage planted for the season of 1908 was not largely increased in 1909.

HOP PRODUCTION IN CALIFORNIA, 1889-1909.

Year	Bales	Pounds	Year	Bales	Pounds
1889	35,230	6,517,550	1900	38,000	7,220,000
1890	28,130	5,204,050	1901	48,000	9,120,000
1891	36,151	6,687,935	1902	53,500	10,165,000
1892	39,800	7,363,000	1903	57,000	10,545,000
1893	51,400	9,509,000	1904	63,000	11,655,000
1894	67,500	12,287,500	1905	......	13,135,000
1895	52,000	9,620,000	1906	108,000	20,000,000
1896	35,000	6,475,000	1907	90,000	16,650,000
1897	45,000	8,325,000	1908	63,200	11,692,000
1898	44,000	8,140,000	1909	69,688	12,892,280
1899	59,000	11,210,000			

MINERAL PRODUCTION.

Petroleum. The production of petroleum in California by districts for 1909 was as follows:

District.	Barrels.	District.	Barrels.
Fullerton-Brea Canyon	4,271,000	Kern River	14,508,292
Puente	38,000	Sunset	1,999,800
Whittier	848,800	Midway	2,234,456
Los Angeles	529,965	McKittrick	5,807,212
Newhall and Santa Paula	516,778	Coalinga	15,406,600
Summerland	66,300	Watsonville and Sargents	63,799
Santa Maria, Lompoc and Arroyo Grande	8,080,488	Half Moon Bay	....
		Salt Lake District	3,821,233
		Total	58,191,723

The output of petroleum for the years 1900 to 1909, inclusive, is as follows:

Years.	Barrels.	Years.	Barrels.
1900	4,000,000	1905	34,275,701
1901	8,000,000	1906	32,516,000
1902	13,973,500	1907	40,101,360
1903	24,337,828	1908	48,300,758
1904	24,423,860	1909	58,191,723

Production of petroleum in the United States shows a very material and constant increase during the last few years and is an important factor in industrial development.

TOTAL YIELD.
(Official Figures.)

Years.	Barrels.
1906	126,493,536
1907	166,095,335
1908	183,024,652
1909 (Figures not yet available.)	

California, in 1908, led the next nearest competitor in the country, Oklahoma, by 2,508,145 barrels, and supplied over 25 per cent of the total production of the United States. The output for 1909 was an increase of 25,675,723 barrels over 1906. California easily holds the position of the largest producer in the United States with her proportion of over 26 per cent of the total production.

PRODUCTION OF THE UNITED STATES FOR 1908.

State.	Barrels.	Value.	Average price per bbl.
California	48,306,910	$ 25,240,360	$ .5225
Colorado	379,653	346,403	.913
Illinois	33,685,106	22,640,881	.672
Indiana	3,283,629	3,203,883	.976
Kansas	1,801,781	746,695	.414
Kentucky and Tennessee	727,767	706,811	.971
Louisiana	6,835,130	4,131,173	.604
Michigan and Missouri	15,246	22,345	1.466
New York	1,160,128	2,071,533	1.7856
Ohio	10,858,797	14,178,502	1.306
Oklahoma	45,798,765	17,694,843	.386
Pennsylvania	9,424,325	16,881,194	.598
Texas	11,206,464	6,700,708	1.7912
Utah and Wyoming	17,775	27,920	1.57
West Virginia	9,523,176	16,911,865	1.776
Total	183,024,652	$131,513,116	$ .722

Mineral Output. The usual comparative tables furnished by the State Mineralogist are presented, showing the mineral output of the State for a series of years.

The production of gold was above the average for past years, and $2,033,631 more than in 1907. While there was an increase in the production of copper of 8,265,727 lbs., there was a decrease in the market value of $990,610. Macadam, owing to the "good roads" movement, nearly doubled in production and more than doubled in value.

MINERAL PRODUCTION OF CALIFORNIA FOR SIX YEARS.

On Authority of Lewis E. Aubury, State Mineralogist

PRODUCTS	1903		1904		1905		1906		1907		1908	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Asbestos ....tons	....	....	10	$162	112	$2,625	70	$3,500	70	$ 3,500	70	$ 6,100
Asphalt ....tons	41,670	$503,659	56,187	672,910	40,304	285,290	77,756	777,560	79,718	1,058,400	105,443	1,082,376
Bituminous Rock......tons	21,944	53,106	45,280	175,680	24,753	60,436	16,077	45,204	24,122	72,835	30,718	109,818
Borax (Crude) ....lbs.	*68,860,000	661,400	91,294,000	698,810	92,668,000	1,019,158	116,346,000	1,182,410	106,825,000	1,200,913	44,400,000	117,000
Cement ....bbls.	640,868	968,727	969,538	1,539,807	1,265,553	1,791,916	1,286,000	1,941,250	1,613,563	2,585,577	1,629,615	2,359,692
Chrome ....tons	150	2,250	123	1,845	40	600	317	2,859	302	6,040	350	6,195
Clays (Brick) ....M	214,403	1,999,546	281,750M	1,994,740	286,618M	2,273,786	277,762	2,538,848	362,167	3,438,951	332,872	2,506,495
Clays (Pottery)........tons	90,972	99,907	84,149	81,952	133,805	130,146	167,267	162,283	160,385	254,454	208,042	325,147
Coal ....tons	93,026	265,383	79,062	376,494	46,500	144,500	24,850	61,600	23,734	55,849	18,496	55,503
Copper ....lbs.	19,113,861	2,520,997	29,974,154	3,969,995	16,997,489	2,650,605	28,726,448	5,522,712	32,602,945	6,341,387	40,868,772	5,350,777
Fuller's Earth ......tons	250	4,750	500	9,500	13,344	38,000	440	10,500	100	1,000	50	1,000
Gems	....	....	....	71,000	....	148,500	....	497,090	....	232,642	....	208,950
Gold ....ozs.	....	16,471,264	....	19,109,600	....	19,197,043	....	18,732,452	809,213.52	16,727,928	....	18,761,559
Granite ....cu. ft.	408,625	678,670	520,687	467,472	228,788	353,837	329,810	344,083	399,431	373,376	483,374	512,923
Gypsum ....tons	6,914	46,441	8,350	56,592	12,850	54,500	21,000	69,000	8,900	57,700	34,600	155,400
Infusorial Earth ......tons	2,703	16,015	6,950	112,282	3,000	15,000	2,430	14,400	2,531	28,948	2,950	32,012
Lead ....tons	55	3,960	62	5,270	267	25,083	169	19,307	164	16,690	562	46,663
Lime and Limestone......	....	592,268	....	658,956	....	878,647	....	925,887	684,218	756,376	396,386	379,243
Limestone † ....tons	....	....	....	....	....	....	....	....	230,985	406,041	273,890	297,264
Macadam ....tons	605,185	436,172	532,690	414,668	1,440,455	942,503	1,066,164	870,887	1,544,617	1,082,302	2,939,901	2,446,768
Magnesite ....tons	1,361	20,515	2,850	9,298	3,933	16,221	4,032	40,320	6,405	57,720	10,582	80,822
Manganese ....tons	1	25	60	900	....	....	1	30	1	25	321	5,785
Marble ....cu. ft.	84,624	97,354	55,401	94,208	73,303	129,450	31,400	75,800	37,512	118,066	18,653	47,665
Mineral Paint ....tons	2,370	3,720	270	1,985	754	4,025	250	1,720	250	1,720	335	2,250
Mineral Water ......gals.	2,056,340	558,201	2,430,320	496,946	2,194,150	538,700	1,585,690	478,186	2,924,269	544,016	2,789,715	560,507
Natural Gas ....cu. ft.	120,134M	75,234	144,437M	91,035	148,345M	102,479	168,175	109,489	169,991	114,759	842,883	474,584
Paving Blocks ....M	4,854	134,642	3,977M	161,752	3,408M	134,347	4,203	173,432	4,604	199,347	7,660	334,780
Petroleum ....bbls.	24,340,839	7,313,271	29,736,003	8,317,809	34,275,701	9,007,820	32,624,000	9,238,020	40,311,171	16,783,943	48,306,910	26,566,181
Platinum ....ozs.	....	1,052	....	1,849	200	3,320	91.46	1,647	300.07	6,255	706	13,414
Pyrites ....tons	24,311	94,000	15,043	62,992	15,503	63,958	46,689	145,895	82,270	251,774	107,081	610,335
Quartz Crystals ....lbs.	....	....	....	....	....	....	....	....	4,000	10,000	4,000	10,000
Quicksilver ....flasks	32,094	1,335,954	28,876	1,086,323	24,655	886,081	19,516	712,334	17,379	663,178	18,039	763,520
Rubble ....tons	1,610,440	1,237,419	1,764,208	1,227,209	1,183,802	774,267	489,208	547,519	744,271	832,713	1,059,044	795,006
Salt ....tons	102,895	211,365	95,968	187,300	77,118	141,925	101,650	213,228	88,063	310,967	121,764	281,469
Sand (Glass) ....tons	7,725	7,525	10,004	12,276	9,257	8,121	9,750	13,375	11,065	8,178	9,255	22,045
Sandstone ....cu. ft.	353,002	585,309	363,487	567,181	302,813	483,268	182,076	164,068	159,573	148,148	93,301	55,151
Serpentine ....cu. ft.	99	800	200	2,310	....	....	847	1,694	1,000	3,000	....	....
Silver (Com'l value)....ozs.	Com'l val.	517,444	....	873,525	....	678,494	....	817,830	1,138,858	751,646	....	873,057
Slate ....squares	10,000	70,000	6,000	50,000	4,000	40,000	10,000	100,000	7,000	60,000	6,000	50,000
Soda ....tons	*18,000	27,000	12,000	18,000	15,000	22,500	12,000	18,000	....	....	9,600	14,400
Tungsten	....	....	....	....	52	18,800	....	189,100	....	120,587	....	37,750
Zinc ....lbs.	....	....	....	....	....	....	206,000	12,566	....	10,598	....	3,544
Totals	....	$37,605,348	....	$43,680,633	....	$43,065,497	....	$46,776,085	....	$55,697,545	....	$66,363,150

* Crude. † Up to 1907 Lime and Limestone were reported under one head.

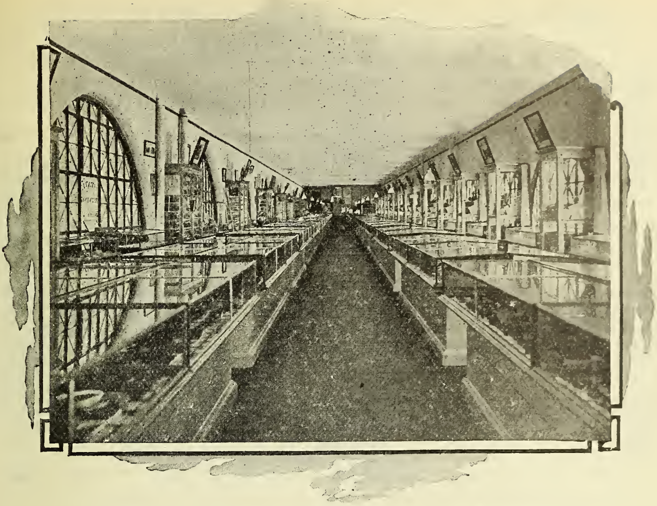


EXHIBIT CALIFORNIA STATE MINING BUREAU.

FOREST PRODUCTS.

Lumber. Report from some of the large mills and a number of the small ones, of the cut for 1909 were not received. The cut for 1909 as reported falls short of that of 1908 some 50 million feet, but is nearly 60 million feet greater than reported for 1907.

The mills failing to send in reports are mostly situated east of the Coast Range.

The shingle cut reported is more nearly normal; as the mills are fewer and operate on a large scale.

LUMBER PRODUCTION OF CALIFORNIA—1899-1908.
(As reported to California Development Board.)
In Thousand Feet.

Year	Redwood	Sugar Pine	Y. Pine	Spruce	Cedar	Fir	Wh. Pine	Shingles M	Shakes etc. M
1899	272,283	50,736	211,115	21,963	4,882	20,508	......	......	.....
1900	327,916	67,920	181,272	20,204	4,049	49,583	......	......	.....
1901	287,001	83,467	152,565	32,943	33,550	38,259	......	......	.....
1902	343,142	68,749	180,726	33,488	2,424	34,648	......	......	.....
1903	463,463	48,939	264,792	12,192	5,478	55,671	......	......	.....
1904	433,803	61,332	260,278	11,019	3,157	28,384	......	......	.....
1905	381,533	39,706	273,529	12,814	3,043	37,291	......	......	.....
1906	318,117	31,858	22,641	7,716	2,876	52,191	108,614	3,838	233
1907	333,393	36,989	51,274	20,156	7,018	66,359	91,610	22,292	4,776
1908	436,714	40,230	132,001	13,048	4,231	75,611	126,767	682,496	19,082
1909	410,688	45,651	76,639	47,822	16,409	6,917	76,772	507,750	8,233

Total all kinds 1899	581,448,895 feet
" " " 1900	650,981,012 "
" " " 1901	627,770,893 "
" " " 1902	663,179,080 "
" " " 1903	852,638,197 "
" " " 1904	709,829,687 "
" " " 1905	747,918,734 "
" " " 1906	544,013,798 "
" " " 1907	611,368,000 "
" " " 1908	828,602,000 "
" " " 1909	670,808,433 "

LUMBER CUT IN CALIFORNIA FOR YEARS FROM 1880 TO 1908.

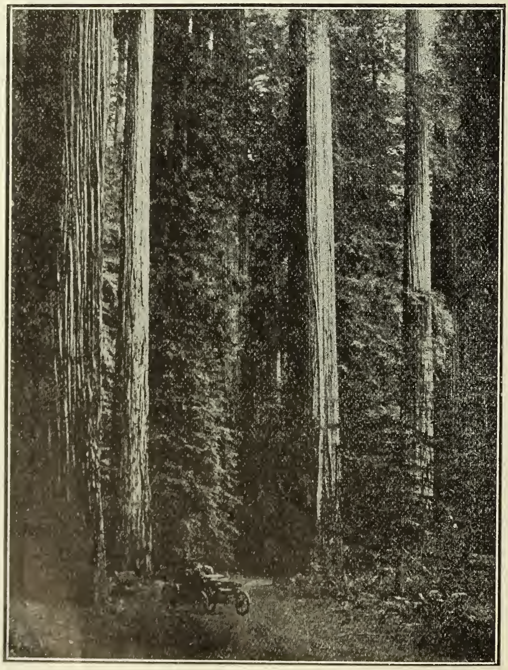
From Government Report.

	M. Feet.	Mill Value.
1880	304,795	
1890	515,823	
1900	734,232	
1905	1,077,499	
1906	1,348,599	
1907	1,345,943	23,640,966
1908	996,115	15,211,055

KINDS OF LUMBER CUT IN CALIFORNIA.

From Government Report, 1908.

	Lumber—Ft.	Value.
Redwood	404,802,000	$6,339,199
Western Pine	318,406,000	5,148,625
Douglas Fir	87,224,000	1,011,798
Sugar Pine	92,500,000	1,676,100
White Fir	56,040,000	628,769
Spruce	22,532,000	245,599
Cedar	12,790,000	134,551
Western Hemlock	925,000	12,025
Oak	886,000	14,176
Ash	10,000	213
	996,115,000	$15,211,055



IN THE REDWOODS.

According to Government reports the lumber cut of the Pacific Coast was 1,406,355 M. feet less in 1908 than in 1907. This was due to depression in business, and the same cause operated to keep many mills idle in 1909. For 1909 the Government has not yet issued a report. The California cut showed a decrease for 1908 as compared with 1907 of 350,000 feet.

Redwood. It is seen from the tables that redwood leads in the lumber production of the State. It produces from 40 to 75 per cent of "Clear Lumber." The redwood (Sequoia Sempervirens) is indigenous to California, and except for a few stunted trees in Japan, is found in no other country. This growth covers a tract on the northwestern coast of California, beginning at the northern line (there being not over 2,000 acres over the line in Oregon), and occupies a continuous district from the seacoast eastward to the crest of the Coast Range of mountains about 240 miles long (north and south) and from 10 to 20 miles wide.

In this district there were originally about 1,200,000 acres of redwood timbered lands, comprising practically the world's entire supply of this most magnificent wood. The estimated yield was from sixty to seventy billion feet of superb merchantable timber, besides from 10 to 20 per cent in volume of by-products—split ties and posts, wood, some fir and tanbark.

Some thirty-four mill plants have grown up since 1860 in this district and they now own one-half of the timbered acreage. These mills have removed probably not more than 20 per cent of the original standing timber having during the fifty years averaged 220,000,000 feet per annum. The cut since 1903 from this district (comprising the counties of Del Norte, Humboldt, Mendocino and Sonoma), has averaged nearly 400,000,000 feet.

Facts found in Department Circular 129 issued by Mr. Pinchot, are again reproduced:

The lumber cut of the United States for 1907 was thirty-seven and one-half billion feet, as against thirty-four and three-quarters billion feet in 1900, being more than double that of 1880, while the increase of population in the decade ending 1900 was but 52 per cent. The United States is now using annually 400 board feet of lumber per capita, while the average for Europe is but 60 feet per capita.

There have been many attempts to ascertain the total stumpage of the United States. It is variously estimated from 1,000 billion board feet to 1,970 billion board feet. The following estimate is given by the "Pacific Lumber Trade Journal" of January, 1907, as to the Pacific Coast States and Idaho, Montana and British Columbia:

	M Board Feet
Oregon	225,000,000
Washington	195,658,080
California	180,000,000
Idaho and Montana	100,000,000
British Columbia	150,000,000
Total	850,658,080

At the low estimate of $3.00 per thousand feet for stumpage, the value of timber in California as it stands in the forest is $540,000,000. This is a large sum, but is doubtless within the truth.

The estimated wooded area of California is 28,608,000 acres. Approximately 24,058,050 acres are in National forest reserves and 4,549,950 acres in private ownership or unreserved.

The conservation of the forest areas of California is most intimately related to the welfare of the State. No greater calamity could befall the State than the denudation of the wooded lands. On the other hand, incalculable benefit will come from wise conservation of the forests and a reforestation of the already denuded areas. Conservation of natural resources must of necessity include the forests and the streams. Happily a wise governmental policy has saved enough of these areas to give assurance that their relation to the common welfare will not be seriously impaired.

Railways. The year 1909 was an important one in railroad circles. Much new work was begun and activities were resumed on work that had been partially or entirely suspended during the financial depression of the previous year.

Work on the Rocklin-Colfax cut-off on the Southern Pacific lines, estimated to cost $10,000,000, was inaugurated early in the year and is being pushed vigorously.

The electrification of the suburban lines of the same company was begun early in the year and is expected to cost $10,000,000.

Additions and extensions were made on several lines operated by the company in various parts of the State. Work was resumed on the 108-mile gap between Willits and Shively on the Northwestern Pacific, and will be practically completed by end of 1910, giving Eureka and the large resources of the intermediate country rail connection with San Francisco.

The new mileage brought into operation during the year and that put under construction is as follows:—

	New Mileage.	Under Construction.
Southern Pacific	78.72	65.03
Western Pacific	222.18	......
Atchison, Topeka and Santa Fe	.....	110.56

According to the figures furnished by the State Railroad Commission the total mileage in the State is 7516.61 miles owned and controlled by thirty-three separate companies.

The mileage operated by the principal companies is as follows:

Southern Pacific System	3,651.20 miles
Santa Fe System	1,287.89 "
Northwestern Pacific	374.99 "
San Pedro, Los Angeles & Salt Lake	73. "
Western Pacific	320.493 "
Yosemite Valley Railroad	79.08 "

The amount of money invested in California railroads is out of all proportion to the mileage, for one mile in the mountains costs more than twenty miles in the prairie states.

The completion of the Western Pacific (which enters the State by Beckwith Pass, 2,000 feet lower than the Central Pacific route) gives San Francisco a third transcontinental line, and already has given new life to the counties through which its lines run, stirring their energies and awakening the people to the possibilities that lie on every hand.

Electric Roads. There are thirty-five electric railway companies operating in the State, covering about 1600 total mileage. They are distributed as follows:

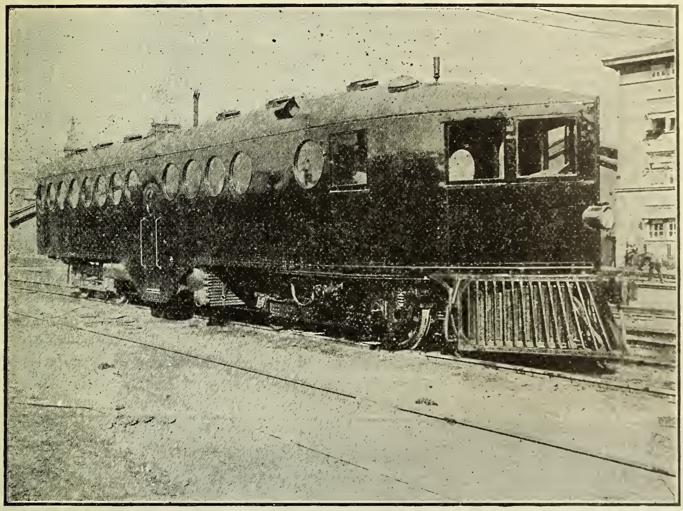
ELECTRIC ROADS.

District.	Companies.
Bay Counties	10
Valleys south of Tehachapi	10
Coast towns, San Diego to Eureka	5
San Joaquin Valley	5
Sacramento Valley	5
Total	35

The mileage of the principal electric roads is as follows:

Pacific Electric and Los Angeles Interurban (double)	534.47
United Railroad, San Francisco	244.
Oakland Traction, Consolidated	169.41
Northern Electric (Freight and Passenger Road)	125.

Over 650 miles of additional electric road construction is projected in the State, mainly interurban lines, largely south of the Tehachapi Range and in the San Joaquin and Sacramento Valleys. A company recently formed proposes to build an electric line 35 miles long from Lakeport, in Lake County, to Pieta, on the Northwestern Pacific Railroad.



NEW MOTOR CAR INSTALLED BY SOUTHERN PACIFIC ON BRANCH LINES.

Manufacturing. Statistics relating to manufactures in the State are not easily obtainable to an extent that enables the Board to make full comparative tables of output or growth. Tables of the most important interests are given only. Manufacturing is a feature that should receive more attention in future than has been possible to give it in the past. San Francisco and the State as a whole presents peculiar advantages in this branch of industry, but owing to limited population and remoteness from large centers of consumption, growth has been retarded. Among the more conspicuous manufactures in the State may be mentioned: Ship building, Iron and Steel, Machinery, Sugar Refining, Brewing, Cordage, Twines, etc., Boots and Shoes, Clothing, Leather, Gloves, Hats and Caps, Flour and Cereal Products, Crackers, Doors, Sashes and Blinds and Wines. The manufacture of Wine is of vast importance and the output of the wineries for the year under review exceeds that of 1908-09 greatly, and is larger than any previous year in the history of wine production in the State. This is shown in the table given elsewhere in the report.

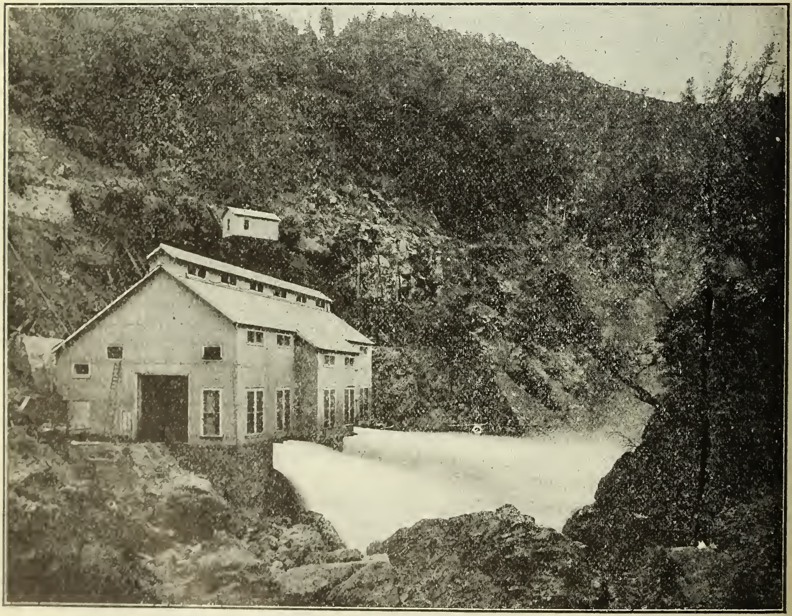
Fruit canning and fruit packing come under the head of manufacturing and the output of the canning and packing houses aggregates many millions each year. In the department of dried fruit is included raisins, for which California has become famous.

The following figures taken from the census report of 1905 and based on the data of 1904 show the relative value of the products of fifteen manufacturing industries in the San Francisco district:

	Value Output.	Average Employed.
Slaughtering and meat packing	$15,486,299	673
Printing and publishing	10,187,664	3,113
Foundry and machine shop products	9,483,767	3,692
Bread, other bakery products	5,550,506	1,542
Clothing (men's and women's)	4,930,646	2,285
Coppersmithing and sheetiron working	4,768,646	1,526
Lumber, planing-mill products	4,690,703	1,676
Liquors, malt and vinous	4,499,830	636
Canning and preserving fruits and vegetables	4,151,414	1,471
Coffee and spice roasting and grinding	3,979,865	275
Flour and gristmill products	3,852,041	248
Leather, tanned and finished	2,937,510	638
Iron and steel industry	2,791,877	1,051
Textiles	2,342,117	1,071
Tobacco, cigars and cigarettes	2,159,650	1,301

The total value of the products of manufactures in the San Francisco district according to the same report was $159,033,080, an increase of 33.4 per cent over the figures reported in 1900. The figures of the seven surrounding counties, $79,070,583, give an increase over 1900 of 41.3 per cent. The same rate of increase for the last five years would make the output of manufactures for San Francisco over $212,000,000 and the surrounding counties $113,760,000, of which Oakland, in Alameda County, claims $58,301,297. Los Angeles is credited with over $62,000,000, and Sacramento, San Jose, Stockton, and Fresno follow in order named. The number of workmen employed in San Francisco and Oakland is estimated at 83,850, with an annual pay-roll of over $70,000,000.

The total manufacturing output of the State can be conservatively estimated at $550,000,000.



GENERATING ELECTRICITY ON A MOUNTAIN STREAM.

Water-Power and Electrical Development. Closely connected with the future of manufacturing development is the fuel and water-power supply convertible into electrical power. The statistics of oil production are given on a preceding page. The following extract from Water Supply Paper No. 234 in the report of the U. S. Geological Survey is of much interest.

CALIFORNIA'S WATER-POWER

DEVELOPED.

Source.	Wheels.	Horsepower.
Sacramento River	576	280,735
San Joaquin River	159	86,224
Minor streams, southern	74	50,183
Minor streams, northern	176	25,440
Sierra Nevada drainage	74	17,737
San Francisco Bay	11	6,455
Totals	1,070	446,744

UNDEVELOPED.

	Minimum.	Maximum development.
Sacramento River	2,420,000	4,580,000
San Joaquin River (including Tulare lake drainage)	759,000	3,140,000
Minor streams, northern	600,000	1,200,000
Sierra Nevada drainage	132,000	202,000
Minor streams, southern	36,400	88,300
Totals	3,947,000	9,210,300

With abundant oil for fuel for manufacturing power and motive-power on the one side, and with over 9,000,000 horsepower in water-power yet to develop, and a widening of markets both at home and in the Orient, California can face her industrial future with confidence.

Climate. The compilation from Government reports giving tables of the climatological conditions existing in various portions of the State, which have appeared in former reports are as interesting now as formerly and the tables are again reproduced.

The fact is well established that no substantial difference exists by reason of latitude—the table shows this conclusively. The same kinds of fruit are grown in commercial quantities as far north as Shasta County as are grown 700 miles south. in Los Angeles County. There is undoubtedly a softness and mildness immediately along the southern coast not enjoyed along the immediate northern coast, and the climate is more equable. But, economically speaking—i. e., from the standpoint of the producer—there is substantially the same climate along the Coast everywhere in the State and in all interior latitudes at like elevation. Rainfall, however, decreases from north to south.

Conclusion. In retiring from active participation in the work of the Board after many years as its executive head, a satisfaction is experienced in the thought that the work done has contributed toward the growth of the State and the development of her industries. The hope is expressed that the same spirit of loyalty and patriotic interest in the work of the California Development Board will continue as has been shown in the work of the California State Board of Trade and that large and comprehensive plans will characterize every effort.

ARTHUR R. BRIGGS, President.

A. L. McDONALD, Secretary.

Approved by the Board and ordered printed.

Note.—For data and statistics used in this report we are indebted to the Controller of U.S. Treasury; Prof. Alexander G. McAdie, California Section U. S. Weather Bureau; U. S. Department of Agriculture; State Agricultural Society; State Superintendent of Banks; State Mining Bureau; State Controller; San Francisco Clearing House; California Fish Commission; Superintendent of Public Instruction; State Dairy Bureau; State Railroad Commission; Auditing, Freight & Engineering Departments of Southern Pacific, Santa Fe and Western Pacific Railroads; United Railroads of San Francisco; Wine & Spirit Review; Petaluma Poultry Journal; California Fruit Grower; Pacific Rural Press; Pacific Lumber Trade Journal; California Wine Association; Italian Swiss Colony; Gundlach Bundschu Co.; Frank D. Flint & Co.; Adolph Koshland; George Shima; Peter J. Shields; W. E. Sprott of the Tulare County Citrus Fruit Exchange; California Produce Co.; Campodonico Burns Correa Co.; E. W. Maslin; E. H. Tryon; E. Clemens Horst; J. K. Armsby Co.; Griffin & Skelly Co.; Castle Bros.; many lumber dealers; the several beet sugar refineries; Merchants' Exchange; Chamber of Commerce of San Francisco; Boards of Trade and Chambers of Commerce of various counties of the State; Board of Supervisors and Board of Public Works, San Francisco; Boards of Supervisors of various counties of the State; Sacramento Valley Development Association; and many growers, producers and others throughout the State.

SUMMARY OF PRODUCTS AND VALUES.

Summary of values of products of the soil for 1909, marketed by the producer and for the most part shipped out of the State. Consumption by producers not included except in case of animals slaughtered for consumption by rural population.

Compiled from data gathered from transportation companies and other authoritative sources.

	Value.	Total Values.
Orchard Products—		
Fresh Deciduous Fruits	$12,228,000	
Citrus Fruits	32,421,600	
Dried Fruits, including Prunes	17,731,560	
Canned Fruits	9,141,003	
Olives and Olive Oil	1,750,000	
Nuts	2,745,000	
		$ 76,017,163
Vineyard Products—		
Table Grapes	4,116,000	
Raisins	4,232,500	
Wine and Brandy	23,000,000	
		31,348,500
Garden Products—		
Fresh	6,187,500	
Canned	2,224,720	
		8,412,220
Dairy Products		27,329,400
Poultry Products	14.980,569	
Honey, Wax, etc.	1,221,760	
		16,202,329
Farm Products—		
Barley	29,718,496	
Wheat	11,824,071	
Oats	5,642,385	
Corn	1,583,000	
Rye and other Grain	876,000	
		49,643,952
Grain and Grass Hay and Alfalfa		36,644,973
Hops		2,320,610
Beet Sugar		10,129,680
Other Field Crops—		
Potatoes	6,006,000	
Potatoes, Sweet	380,000	
Beans	8,000,000	
Onions	1,950,000	
Seeds and Sundry other	2,250,000	
Kaffir Corn, Broom Corn, etc.	350,000	
Melons	2,250,000	
		21,186,000
Fish and Game		5,000,000
Forest Products—		
Lumber	10,734,375	
Shingles, Shakes, Laths, etc.	900,000	
Ties—Tan Bark	2,500,000	
Poles, Piles, Mine Timbers, etc.	2,000,000	
Cordwood, etc.	1,800,000	
Add 25 per cent not reported	4,483,593	
		22,417,968
Minerals—		
Petroleum (for 1909)		34,915,033
Gold (1908)	18,761,559	
Other Minerals (1908)	21,035,410	39,796,969
Farm Animals and Products—		
Increase	14,535,000	
Slaughtered for market	18,000,000	
Slaughtered in rural districts	9,500,000	
Wool	2,400,000	
Hides, Tallow, etc.	2,800,000	
		47,235,000
Sundry others not included above—		
Nursery Products	1,800,000	
Florist Products	800,000	
Fruits marketed in cities	9,500,000	
Vegetables marketed in cities	13,000,000	
Cider, Vinegar, etc.	1,600,000	
		26,700,000
Grand total		$455,369,837

TEMPERATURE AND RAINFALL

COMPARATIVE TABLE OF THE TEMPERATURES AND RAINFALL IN CALIFORNIA, 1883-1909.

Prepared by the United States Weather Bureau Office at San Francisco.

Year.	RED BLUFF.				SACRAMENTO.				FRESNO.				LOS ANGELES.				SAN FRANCISCO.			
	Mean.	Max.	Min.	Rainfall.	Mean.	Max.	Min.	Rainfall.	Mean.	Max.	Min.	Rainfall.	Mean.	Max.	Min.	Rainfall.	Mean.	Max.	Min.	Rainfall
1883	61.5	107	19	13.76	59.9	104	22	13.48	......	......	......	....	61.6	104	28	14.14	55.6	95	36	15.43
1884	60.8	107	22	28.06	59.8	100	21	34.92	......	......	......	....	60.8	102	34	40.15	56.7	83	35	38.82
1885	64.4	108	33	29.63	62.5	105	34	20.72	......	......	......	....	63.0	108	36	10.53	57.8	87	43	24.90
1886	63.2	109	30	17.21	60.3	105	27	18.17	......	......	......	....	61.1	98	32	16.72	57.3	94	41	20.02
1887	64.4	112	27	13.60	60.3	100	28	13.34	......	......	......	....	61.7	100	34	16.02	56.5	97	33	19.04
1888	64.5	109	18	24.94	61.4	108	19	18.46	65.4	111	20	8.76	60.7	99	31	20.82	57.3	93	29	23.03
1889	63.3	111	26	32.87	60.9	104	31	27.48	64.3	112	27	12.27	63.0	103	32	33.25	57.9	89	39	23.03
1890	61.5	110	22	25.60	59.4	102	27	20.95	62.6	111	24	8.36	63.6	105	30	12.69	53.3	86	36	36.94
1891	62.4	114	26	23.04	60.6	106	26	15.63	63.0	114	26	8.94	63.0	109	33	12.84	56.6	100	37	25.43
1892	62.2	108	28	33.48	60.2	106	26	23.60	63.1	112	27	8.75	61.6	99	33	18.72	56.0	92	38	21.11
1893	60.6	106	27	24.36	58.8	103	28	16.59	61.0	109	28	9.40	61.5	92	31	21.96	54.3	90	36	22.08
1894	62.0	110	27	26.98	60.3	108	26	22.61	62.6	109	25	12.48	60.3	99	32	7.51	55.1	94	36	17.91
1895	62.2	108	28	22.57	60.2	102	28	17.38	62.5	110	26	10.39	61.7	100	34	12.55	55.6	89	38	24.32
1896	62.5	109	26	28.46	60.7	104	28	25.06	63.7	111	28	11.02	63.1	103	35	11.80	55.9	91	33	17.13
1897	62.0	109	27	20.08	59.8	105	24	15.32	62.3	110	23	8.41	61.8	97	30	14.28	55.0	92	38	28.25
1898	62.5	112	24	12.91	59.5	110	26	10.04	63.1	114	24	4.99	62.5	99	31	4.83	45.6	89	36	16.40
1899	62.4	109	26	28.07	59.6	102	30	21.14	62.6	111	24	10.54	62.0	100	33	8.69	55.0	94	34	9.31
1900	62.4	109	29	21.77	59.9	102	30	17.91	62.8	109	26	11.06	62.5	96	37	11.30	56.2	92	40	23.23
1901	63.1	111	25	25.51	60.1	105	26	18.52	63.5	110	27	8.07	62.1	97	31	11.96	55.2	91	37	15.33
1902	61.4	115	28	35.53	59.2	107	29	17.88	62.2	110	24	7.91	61.2	94	32	13.12	55.4	83	38	19.75
1903	61.5	108	27	22.93	59.4	102	29	14.70	62.2	108	25	6.19	62.2	97	32	14.77	55.3	96	37	19.18
1904	62.8	108	29	33.96	60.1	102	32	20.99	63.7	109	28	13.33	63.9	97	35	11.88	56.4	101	38	18.33
1905	62.9	113	25	23.35	59.7	110	28	14.97	63.0	115	26	7.27	62.6	101	33	19.19	56.3	98	39	24.72
1906	63.0	110	30	40.37	60.4	104	30	30.72	63.2	111	27	16.04	62.9	105	34	21.46	56.2	85	40	16.24
1907	61.2	101	27	24.66	59.6	99	31	20.05	62.5	103	30	9.00	62.6	103	35	15.30	56.4	90	36	26.34
1908	62.3	114	25	17.92	59.7	103	28	11.21	63.0	114	29	7.00	61.9.	96	37	13.74	55.0	89	35	22.47
1909	62.1	106	29	34.99	59.7	101	29	24.87	62.8	107	30	16.47	61.4	103	37	23.92	55.2	94	38	16.42

Note—Red Bluff, located in the northern extremity of the Sacramento Valley; Sacramento, central of that valley; San Francisco, representing the coast region; Fresno, central of San Joaquin Valley; Los Angeles, representing Southern California.

APPENDIX

The appended articles are furnished by recognized authorities on the subjects treated, and answer many inquiries made by homeseekers.

CLIMATE OF CALIFORNIA.

By N. P. Chipman.

California must be counted among the most valuable possessions of the United States for many reasons; chiefly, however, because of the matchless climate of the State and the high economic value it bestows upon a large area of arable land whose coast line measures 850 miles from point to point (about 1,000 miles of actual coast), the average width of the State being about 200 miles. The south boundary line of latitude emerges on the Atlantic Coast near Savannah, Georgia, and the north parallel near Boston, Massachusetts. Between these two latter points lie ten states of the Union. It counts for something to the nation that this extended coast line, on the Pacific Ocean, is fortressed by a region capable of supporting many millions of people and that the coast to the Canadian boundary is backed by a country of almost boundless resources.

It is not generally appreciated that all of France, all of Italy north of Rome, and half of Spain lie **north of the north boundary of California.** This relative position on the west coast of our continent would suggest a mild climate, but not necessarily its unique and exceptional character. It is the purpose of the writer to bring to public attention the principal features of this climate and to show its economic value.

Professor Alexander G. McAdie, District Forecaster of the United States Weather Bureau, San Francisco, states that the climate of California is controlled by four great factors: (1) The movements of the great continental and oceanic pressure areas (commonly called "high" and "low"), together with the movements of individual pressure areas; (2) the prevailing drift of the atmosphere in temperate latitudes from west to east; (3) the proximity of the Pacific Ocean, with a mean annual temperature near the coast line of 55 degrees, Fahrenheit, a great natural conservator of heat, to which is chiefly due the moderate range of temperature along the coast from San Diego even to Tatoosh Island (extreme northwest coast of Washington); and (4), the exceedingly diversified topography for a distance of 200 miles from the coast inland. To this diversified topography is due the fact that California is a land of many climates, "from the hottest subtropical to the cold temperate, and from the driest desert to the most humid regions of the higher mountains and northern coast."

The Sierra Nevada Mountains form a natural boundary line on the east, rising gradually from the west to a height of from 8,500 to 14,000 feet, much above the snow-line, and falling off to the Nevada plateau, which is about 4,000 feet above sea-level. The Coast Range Mountains form a broad belt, traversing the entire coast, and consist of two or three parallel ranges from 3,200 to 5,000 feet high, and between these ranges are many rich valleys, some of large extent. The Coast Range merges into the Siskiyou Mountains on the north, a connecting link with the Sierra Nevada, crowned by Mount Shasta; and the Tehachapi Mountains, far to the south, form another connecting link.

Between the Sierra Nevada and the Coast Range mountains and these connecting mountain links lies the great central valley of California, about 400 miles long and from 50 to 60 miles wide; an agricultural district of great fruitfulness, comprising quite one ninth of the State. There is but little waste land in it. The northern portion is blessed by ample rainfall, and the southern part, when watered, is everywhere very productive, as is the entire valley. The Sacramento River runs south through the northern portion (Sacramento Valley), rising near

Mount Shasta; the San Joaquin River runs north through the southern portion (San Joaquin Valley); the two rivers uniting near the middle of the great valley and flowing westward into San Francisco Bay, and thence through the "Golden Gate" into the Pacific Ocean.

There is here a wide break in the Coast Range through which the summer trade winds find their way into the interior, an important factor in the climatic conditions of the valley. This sea-breeze blows up stream, north into the Sacramento Valley and south into the San Joaquin Valley, thus tempering the heat of the great valley. This influence, together with the dryness of the atmosphere, renders the occasional high temperatures of these two valleys more easily endurable at 110 degrees than is 95 degrees in the humid regions of the Eastern States.

South of the Tehachapi Mountains the Sierra Nevada Mountains continue at less elevation, and are locally called Sierra Madre. The wonderfully developed region known as Southern California lies west. On the east is the Mohave desert, and south and east the Colorado desert; important regions of the State as yet but partially developed, but of great fertility by the application of water, which the genius and enterprise of the people are rapidly bringing in touch with the land. As in the north, the breaks in the Coast Range and in the Sierra Madre become important factors in modifying the climate of the interior. In Southern California and in Central California (San Joaquin Valley) extensive irrigation systems already in operation supply the comparative lack of rainfall. Irrigation is also being extensively developed in the Sacramento Valley.

Winds. The prevailing winds come from the ocean and are principally from the southwest landward, producing a cool summer climate along the immediate coast. Fogs sometimes sweep in from the ocean, more or less unfavorably affecting the enjoyment of the climate, but by their moisture contributing to the growth of vegetation. These fogs are less harsh on the south coast. The heat rising from the great valley draws a strong current from the trade winds through the Golden Gate that divides as it passes and extends south to the Tehachapi Mountains and north to Mount Shasta, rendering the air of the valley more delightful. The same drift of the trade winds tempers the air far into the interior in Southern California. The high mountain barrier on the east, through the length of the State, deflects the cold winds that sweep down over the Nevada plains in winter from Alaska and prevents their entrance into the valley regions of California. Dry north winds sometimes blow through the great valley in summer, raising the temperature, and are occasionally injurious to growing crops, but they seldom continue more than three or four days, when they are succeeded by the balmy and cool ocean breezes. Along the immediate coast the average winter and summer temperature differs only about four degrees, and one of the characteristic features of the San Francisco climate is exemplified by the sight of furs worn by ladies over summer garments, and fires in summer are not infrequent.

All over the Coast, however, there are thousands of sheltered nooks and small valleys and sequestered spots, where the fogs and harsh winds of the Coast have no appreciable effect and where the climate is charming and sunny to the last degree, both winter and summer.

Rainfall. The terms "winter" and "summer," as commonly used in the Eastern States, have no application in California. The year is more properly divided into "rainy season" (winter) and "dry season" (summer). Practically all the rain falls from about the first of November until April; the remaining months of the year are rainless, except in some parts of the mountains and on the Coast north of Cape Mendocino, where occasional summer showers occur. Cereal crops mature in early summer after rain ceases, and no housing of crops is necessary for protection against rain in harvest time.

The rainfall of California is a characteristic feature of the climate. A word as to its source and cause will be interesting. Professor McAdie points out that over the North Pacific Ocean in winter there exists an area of low barometer (latitudes 40 and 60 degrees north and 130 degrees west to 140 degrees east longitude), while an area of high pressure overlies the greater part of North America with a southwest extension to the tropics and west to the one hundred and sixtieth meridian. He says: "We shall find that typical wet winters on the California coast occur when this great North Pacific 'low' extends well eastward, overlying the continent west of a line drawn from San Francisco to Calgary (Canada). At the same time the great continental high area apparently recedes to the southeast. On the other hand, the pressure distribution characteristic of a 'dry' winter on the California coast is marked by the prevalence of the continental 'high' over the entire country west of the Rocky Mountains."

Our winter rain storms (barring an occasional one coming in from the ocean unheralded) have their origin off the coast of Vancouver, and curiously enough are attended in the Sacramento Valley by **south** winds. The storms diminish in intensity as they travel south, tapering off as they approach Southern California. The table will show this graphically, from which will be seen also the great variations of rainfall within the State, and even within the great valley. In 1909, for example, the rainfall at Eureka, Humboldt County, on the immediate coast, was 51.64 inches, and at San Diego but 14.4 inches. At Monumental, Del Norte County, adjoining Humboldt (further north), the rainfall reached 153.54 inches. At Redding, Shasta County (interior), the rainfall was 56.38 inches; at Red Bluff, forty miles south, 34.99 inches; at Sacramento, 24.87 inches; Fresno (center of San Joaquin Valley), 16.47 inches; Bakersfield (extreme southern point of valley), 9.29 inches. In the Sierra Nevada Mountains the rainfall increases about one inch for every hundred feet elevation. It will be observed that the rainfall south of the Tehachapi Mountains (Southern California) is greater than in the extreme southern portion of the San Joaquin Valley.

The direction of the Coast valleys exerts striking influence upon rainfall and temperature, dependent upon the facility for the trade winds to reach them. The climatic and agricultural character of the foothills, up to 2,000 or 2,500 feet, is much the same as in the valley, although the character of the soil is different. Even higher, fine deciduous fruits are grown. Still higher are the lumbering and mining camps, and thousands of cattle and sheep are herded in summer, where in winter the mountains are deeply covered with snow. Illustrative of the characteristic variations of climate, it may be stated that in the vicinity of Summit, Placer County, elevation 7,017 feet, the temperature was 2 degrees above zero, and the snowfall for the year was 52.0 inches. At Rocklin, Placer County, thirty miles west, elevation 249 feet, the lowest temperature was 25 degrees above zero. All the natural ice consumed in California was made near Summit, while oranges were being gathered for market around Rocklin.

Temperature. I have prepared the following table from the "Annual Summary, California Section, of the Weather Bureau," for 1909. It shows not only temperature, but also rainfall, elevation of points above the sea, clear and cloudy days. I have taken illustrative points in Northern and Central California, the Coast country and the mountains. It will be noted that while the annual mean temperature of the Pacific Coast does not suffer greatly from the annual mean of the Atlantic Coast, the average summer and average winter here and on the Atlantic are wide apart, and the extremes between the highest and lowest temperature are very great. It is this exemption from extremes of temperature that constitutes the charm, and healthfulness as well, of the Pacific Coast.

In the interior, especially in the great valley, the seasons show greater extremes of temperature, but, as already suggested, the dryness of the air renders these extremes less felt than on the Coast, where the air is more moist. The limit of winter cold is the test of what may be grown rather than the average temperature.

And so we find citrus fruit flourishing from the north to the south end of the great valley, and orange growing is a leading industry in several counties of that valley. In Southern California both the heat and the cold are comparatively milder, although the readings of the thermometer do not much differ from the points north of the Tehachapi. It is shown by the table that there were 213 clear days in San Jose as against 150 in Los Angeles during the year, although there were nearly twice as many rainy days in San Jose. Abundant sunshine is also found in the interior. For example, Sacramento, in the north, had 215 clear days, and Riverside, in the south, 228. In truth, the California of "sunshine, fruit and flowers" is pretty nearly the whole State, below high mountain elevations.

Climate Unchanging. As far back as we have any recorded history, and behind this, embracing traditions coming through the early Mission fathers, we learn of the same equability of temperature, the same balmy atmosphere, the same luxuriance of vegetation. Our soil may require renewing by fertilization, but our climate is as constant as the sun. The conditions which have produced the result are themselves unchanging, and so must be the result.

It Is Health-Giving. California is a universal sanitarium. The climate of the Coast is invigorating, stimulating and delightful, neither hot nor cold; the laborer knows no fatigue except from physical exhaustion resulting from over-taxed muscles. The brain-worker yields only to failure of mental powers. In the interior valleys, in midsummer, the temperature is higher, and there is discomfort at times while working in the harvest fields and at the desk and behind the counter. But the dryness of the air robs the thermometer of much of its terror. The sensible temperature, i. e., the temperature we in fact experience or feel in the valleys, is less irksome at 100 or 110 degrees than in regions of greater humidity of the atmosphere where the reading is from 85 to 95 degrees. Sunstroke here is unknown. It is the common experience of persons coming into almost any part of the State that they increase in weight and strength, are less troubled with nervous affections, sleep and eat well, and improve in health if ailing from any cause.

Source of Happiness. The variety of temperature and climatic conditions existing in the mountains, valleys, and on the Coast, and the celerity and ease with which our inhabitants may change their immediate surroundings, constitute one of the great charms of California life. Thousands of families residing

A NEW YEAR'S SURF-BATHING PARTY IN PACIFIC OCEAN, NEAR CLIFF HOUSE, SAN FRANCISCO.

CLIMATOLOGICAL DATA FOR 1909.

Stations.	Counties.	Elevation, feet.	Temperature Degrees Fahrenheit.			Precipitation, inches.		Rainy Days.	Sky.			Part of Country.
			Annual Mean.	Highest.	Lowest.	Total for year, inches.	Total Snowfall inches.		Clear Days.	Partly Cloudy Days.	Cloudy Days.	
Hornbrook	Siskiyou	2,154	51.0	102	15	24.26	35.0	48	244	21	101	Mountain and High Plateau.
Alturas	Modoc	4,460	46.7	100	—21	14.61	47.5	104	171	114	80	" " " "
Dunsmuir	Siskiyou	2,285	53.7	101	19	79.40	150.5	106	233	3	129	" " " "
Quincy	Plumas	3,400	47.9	94	8	68 87	126.2	105	216	48	101	" " " "
Summit	Placer	7,017	43.9	89	2	....	520.0	...	214	44	107	" " " "
Tamarack	Alpine	8,000	38.5	86	—24	73.08	673.0	99	190	33	142	" " " "
Yosemite	Mariposa	3,945	...	99	..9	....	201.0	...	...	...	...	" " " "
Keeler	Inyo	3,620	...	...	...	....	....	...	...	...	...	" " " "
Redding	Shasta	552	62.2	103	26	56.38	*37.0	95	225	49	91	Sacramento and San Joaquin Valleys.
Red Bluff	Tehama	307	62.1	106	29	34.99	*18.0	85	222	48	95	" " " " "
Orland	Glenn	254	62.4	107	26	24.09	5.0	77	218	67	80	" " " " "
Colusa	Colusa	60	60.4	103	29	18.31	0	61	...	...	...	" " " " "
Sacramento	Sacramento	71	59.7	101	29	24.87	T	89	215	65	85	" " " " "
Stockton	San Joaquin	23	59.2	102	26	20.32	0	66	241	56	68	" " " " "
Merced	Merced	173	60.2	105	31	15.30	0	50	260	3	102	" " " " "
Fresno	Fresno	293	62.8	107	30	16.47	0	60	233	47	85	" " " " "
Bakersfield	Kern	404	68.0	108	30	9.29	0	35	305	18	42	" " " " "
Fruto	Glenn	624	62.2	106	28	22.76	6.0	53	270	1	94	Foothills, Sac. and San Joaquin Vals.
Oroville	Butte	250	62.1	110	28	41.48	4.0	74	201	37	127	" " " " " "
Nevada City	Nevada	2,580	53.8	98	14	76.55	59.0	112	197	30	138	" " " " " "
Rocklin	Placer	249	60.6	105	25	37.55	0	71	254	29	82	" " " " " "
Placerville	El Dorado	1,875	54.6	99	23	58.28	12.0	88	220	33	112	" " " " " "
Jamestown	Tuolumne	1,471	57.6	100	25	45.64	2.0	73	248	50	67	" " " " " "
Lemon Cove	Tulare	600	61.0	108	20	18.43	0	44	234	58	73	" " " " " "
Reedley	Fresno	347	62.3	107	27	19.66	0	44	273	23	69	" " " " " "
Caliente	Kern	1,290	...	...	...	....	....	...	...	...	...	" " " " " "
Eureka	Humboldt	64	51.0	77	29	51.64	0	129	96	125	144	Sea Coast.
Point Reyes	Marin	490	51.7	85	38	26.35	0	96	120	90	155	" "
Farallone Islands	San Francisco	30	51.9	81	41	24.68	0	104	126	95	144	" "
San Francisco	San Francisco	207	55.2	94	38	31.36	0	94	158	100	107	" "
Monterey	Monterey	15	56.2	80	28	28.39	0	60	230	76	59	" "
Santa Barbara	Santa Barbara	130	57.8	100	33	43.23	0	61	210	94	61	" "
San Diego	San Diego	93	60.0	100	36	14.14	0	42	199	92	74	" "
Los Angeles	Los Angeles	293	61.4	103	37	23.92	0	50	150	139	76	Southern California.
Riverside	Riverside	851	62.0	107	25	18.06	0	61	228	89	48	" "
Sierra Madre	Los Angeles	1,400	61.4	106	33	46.90	0	60	230	38	97	" "
Escondido	San Diego	657	61.3	113	23	28.41	0	41	91	246	28	" "
Elsinore	Riverside	1,234	61.4	108	19	21.13	0	40	263	38	64	" "
Redlands	San Bernardino	1,352	61.8	105	26	17.38	0	64	201	78	86	" "
Calistoga	Napa	363	56.8	105	32	61.56	0	76	240	0	125	West of Coast Range.
Santa Rosa	Sonoma	181	55.9	107	24	46.40	0	101	203	60	102	" " " "
Mt. Tamalpais	Marin	2,375	54.3	93	28	42.16	2.4	103	206	53	106	" " " "
Lick Observatory	Santa Clara	4,209	51.1	84	22	43.06	76.0	64	213	55	97	" " " "
San Jose	Santa Clara	95	56.7	100	26	23.49	0	89	213	85	67	" " " "
Hollister	San Benito	284	56.5	103	21	22.39	0	69	229	65	71	" " " "
Los Gatos	Santa Clara	600	57.9	103	31	51.77	0	77	238	23	104	" " " "
Paso Robles	San Luis Obispo	800	60.7	106	15	29.58	0	51	282	28	55	" " " "
Ojai Valley	Ventura	900	60.4	108	23	39.12	0	49	236	85	44	" " " "
Palm Springs	Riverside	584	70.4	113	32	5.50	T	23	282	23	60	Southeastern California.
Calexico	Imperial	0	71.1	112	26	3.94	0	6	283	30	52	" "
Mecca	Riverside	−185	71.1	112	21	4.01	0	16	313	27	25	" "

* Very abnormal. Most frequently the snowfall, if any, is an unmeasurable quantity.

in the valleys find their way into the mountains or to the seacoast and have most delightful camping-out experiences; and this they do in a few hours or a day or two at most, with their own conveyances. Our valleys and mountains lie so related to each other that no spot can be found devoid of scenic beauty. There is no dull monotony in the farmer's life as there is from necessity in the lives of those who reside on the great plains regions of the West, few of whom are ever permitted to enjoy the inspiring and elevating means of recreation and rest from labor which are a part of our life here.

Some Peculiarities. Degrees of latitude cut little figure in determining the readings of the thermometer, which is not at all true on the Atlantic Coast and in the West. The foregoing table tells the story from official sources for 1909 and is valuable as covering the whole distance and intermediate points, from San Diego, near the south line of the State, to Hornbrook, Siskiyou County, near the Oregon line, nearly ten degrees of latitude apart.

The fact that latitude has little to do with our climate is a remarkable feature. It is not true of Italy, for there is a great variation there between the temperature north and south. It is not true of France or elsewhere along the west coast of Europe. We believe this to be a peculiarity unique and found only on this Coast. This peculiarity is further attested by the fact that in nearly the whole length of this vast region the same fruits are grown. Within a radius of fifty miles around Oroville, which is 150 miles north of San Francisco, and 650 miles north of Los Angeles, there were nearly one thousand (1,000) carloads of oranges raised last year and shipped out of the State, and they ripen earlier than in the south. Elevation has much more to do with temperature than latitude, for in high altitudes we find snow. Our mountain summer climate is extremely delightful and is destined to draw many Eastern people to the numerous charming retreats in the Sierra Nevada and the Coast Range.

Economic Value. But, after all is said, it must be conceded that climate is our greatest resource because of its high economic value, as it is also our most valuable asset. The unthinking speak of climate as an attraction rather than a resource, but it is a resource because by its influence we are enabled to so marvelously diversify and increase the number of our agricultural products, and often, too, all these products may be grown on the same body of land. It is a resource, because man's labor here can be profitably employed every day in the year, because there is no month when vegetation in some form is not growing, and because it furnishes ideal conditions for the growth of irrigated crops. There is no time in California when all nature is at rest or plant life is sleeping. In the field, orchard, garden, factory, and in the mines; on the stock-farm and in the dairy, every day is a day of productive labor. We commence shipping fresh deciduous fruits in May and there is no cessation until December. In November we begin to ship citrus fruits, and they overlap the deciduous fruits and continue, in fact, the year through.

Professor E. W. Hilgard justly sums up the matter thus: "Taken as a whole, California corresponds in its climatic features and adaptation to the Mediterranean region of Europe and Africa—a grand Riviera, with a partial background of the desert as well, where the date palm and the ostrich find a congenial home, and alluvial plains equaling in richness the famed delta of the Nile."

IRRIGATED AGRICULTURE—THE DOMINANT INDUSTRY OF CALIFORNIA.

By Samuel Fortier.

California has always been considered a State of great possibilities. Her mines and her commerce and her climate and agriculture have long been the theme of inspiring pen-pictures. With a range of climate and soil and of mountain and valley more varied than that possessed by any of her sister States, with a geographical position and commercial facilities naturally favorable to intensive development, she has ranked as the leader in the upbuilding of western America. But while her gold and her seaports and her forests and commerce have made her position unique among the States, her future has always been considered bound up in her agriculture. Over half a century of development has shown that if this agriculture is to be the best of which the State is capable, it must be founded on irrigation, and for years the careful husbandman has, over a large portion of the State at least, made the artificial application of water to land an important part of his industry. Hence it is that any treatment of irrigation in California must consider not only what has been accomplished, but what seems possible of accomplishment in the future.

The total land area of California is approximately one hundred million acres. According to data secured by Mr. F. W. Roeding of the Office of Irrigation Investigations of the U. S. Department of Agriculture, about 2,500,000 acres was actually irrigated in 1909. This statement, however, does not convey a true idea of the relative importance of irrigation to agriculture in California. Professors Hilgard and Loughridge of the University of California estimate that only fourteen million acres, or about one-seventh of the total area, is valley agricultural land, so that the two and one-half million acres irrigated comprise more than one-sixth of the irrigable land of the State. This estimate does not include the tillable upper mesas and mountain valleys, both of which contain large areas of irrigable land. Yet this is not the whole truth. In 1902 about one-fifth of all the irrigated land in the United States was in California, and this State ranked first in the total number of irrigated farms and in the total construction cost of systems. The highest priced irrigated land in America is found in California, and in no other State has water for irrigation reached so high a value, or been as carefully and as economically used. And in no other State is there so great an area of fertile farming land for which the available supply is so large.

Irrigation, like any other development, has followed the lines of most evident financial returns. Hence the localities of least annual and summer rainfall were the first to be reclaimed by the artificial use of water. The tide of irrigation, however, has been moving steadily northward, and, excepting in the mountainous sections and the sections of excessive rainfall, the necessity for irrigation, or at least the value of it where it is not a complete necessity, is almost universally recognized. While heretofore, then, irrigation has followed the line of most evident return, in the future it will follow the available water supply.

The water supply of the State is in its streams and wells. The wells now dug and in use are chiefly in Southern California and in the lower San Joaquin and the Santa Clara Valleys. Only the larger streams of the State have been measured, and without reliable data it is impossible to estimate the flow in the hundreds of smaller streams.

The supply in the larger streams as measured by the United States Geological Survey is given in the following table. These figures give in round numbers the average annual flow in acre-feet for the past four to six years.

TOTAL MEAN ANNUAL FLOW OF CALIFORNIA STREAMS IN ACRE-FEET.

Name of Stream.	Station.	Acre-Feet.
San Joaquin River	Herndon	2,750,000
Tuolumne River	La Grange	2,350,000
Kings River	Sanger	2,000,000
Stanislaus River	Knight's Ferry	1,500,000
Merced River	Merced Falls	1,200,000
Kern River	Bakersfield	700,000

Kaweah River	Three Rivers	400,000
Tule River	Porterville	250,000
Salinas River	Salinas	200,000
American River	Fair Oaks (near)	4,130,000
Yuba River	Smartsville (near)	3,670,000
Feather River	Oroville	5,950,000
Cache Creek	Yolo	650,000
Stoney Creek	Fruto (near)	540,000
Sacramento	Red Bluff (near)	12,420,000
Southern California Streams		200,000
Colorado River at Yuma (one-half flow)		6,250,000
Total		45,160,000

Leaving out of consideration the water supply available in the creeks and smaller rivers, 45,000,000 acre-feet of water is sufficient to cover the 14,000,000 acres of agricultural land in California to a depth of over 38 inches, which is ample for the growth of all crops. This vast quantity of water can never be entirely utilized in irrigation, because it cannot be fully controlled, but the statement of it shows the tremendous potentialities of California irrigated agriculture.

What California is now accomplishing by irrigation can partly be told by using as a basis the irrigation census of 1902. According to this census, 1,708,720 acres were irrigated in 1902, which was an increase of 18.2 per cent over the area irrigated in 1899. From 1902 to 1909 the increase has been more rapid and about 2,500,000 acres are being watered at this time.

Using the figures that were true up to 1902 as a basis, the total cost of the irrigation systems has been over $27,000,000, or over $13.50 per acre. The significance of this last figure is apparent when it is remembered that it is nearly one-half the total value of land and buildings invested in manufactures in California in 1900.

From the returns made by assessors and the shipments of products out of the State it is possible to form an approximate estimate of the value of a part of the irrigated product. Of the 300,000 acres in vines and an equal area in orchards, the annual gross returns to the growers would not vary far from $150 per acre, or $90,000,000 in all. Then, in addition, there is alfalfa, vegetables, small fruits and other crops, the greater part of which are irrigated. The gross returns from these would increase the annual value to the extent of $45,000,000.

It has already been stated that irrigation was first resorted to in California in those sections where a profit from irrigation was first most evident. These sections have, of course, been where the rainfall is least. In that portion of the State south of Tehachapi, commonly known as Southern California, the development of irrigation was rapid, continuing with bounds until the water supply available in the streams was practically exhausted. Since then the irrigated area has been extended only by resort to pumping from wells and by endeavoring to make the water already diverted irrigate two acres where it irrigated only one acre before. The total area under ditches in various parts of the State in 1909 were as follows: Southern California, 850,000 acres; the Coast Country, 85,000 acres; San Joaquin Valley, 2,150,000 acres; Sacramento Valley, 630,000 acres; other parts of State, 160,500 acres; total, 3,875,000, of which about two-thirds was actually irrigated in 1909. Outside of Southern California, the principal areas irrigated from wells and springs were located in the lower San Joaquin and in Santa Clara Valley.

The foregoing is a brief statement of what has been accomplished by private enterprise during less than half a century in reclaiming a portion of the irrigable lands in California. The attention of the reader has likewise been called to the natural resources in both land and water which remain undeveloped, awaiting the concerted action of industrious farmers. Notwithstanding the magnitude of this task, we believe that it can be accomplished. The same intelligence, energy and perseverance which wrested 2,500,000 acres from barren sands and low-producing grain fields can reclaim other millions of acres.

Of late years large sums of money have been expended on both the northern and southern borders of California by the United States Reclamation Service in the construction of irrigation works. When these are completed and settled they will materially increase the revenues obtained from irrigated farms and orchards. Over 55,000 acres of the Klamath Project lies in Modoc and Siskiyou counties, California. This land, although over 4,000 feet above sea-level is well adapted to the growth of alfalfa, red clover, grains and vegetables. On the southern boundary of the State, over 16,000 acres of the Yuma Project are in Imperial County, California. These, with about 14,000 acres included in the Orland Project, make a total of 85,000 acres that will be irrigated when these projects are completed.

What is most needed in this State and what we should most highly prize is an influx of industrious settlers, each possessing sufficient means to enable him to make a fair start along the line of irrigated agriculture. The opportunities open to this class are exceptionally good. All of the natural advantages essential to the success of the irrigated farm are to be found in the great central valley of California—fertile soil, good climate and an abundant water supply. Yet these natural gifts count for little when unutilized. We need the intelligent brain and the trained hand of thousands of farmers to make the best possible use of these advantages. In much of this work no large amount of capital is required. The individual, mutual company and irrigation district can reclaim an additional 2,000,000 acres in a manner similar to the successful efforts of like agencies in the past. In this connection it may be a surprise to some to learn that there are about 1,375,000 acres of rich valley land now under ditch, which is not irrigated on account of the lack of settlers. Much of this land is for sale at reasonable prices. The water supply for a much larger area is readily accessible, and both land and water can be united under the most favorable circumstances whenever a sufficient number of citizens join to bring it about.

This dominant industry of California is in no danger of languishing for a few years to come on account of the lack of irrigation canals and storage reservoirs. The State is now filling up at the rate of about 100,000 people a year, and there is sufficient unirrigated land under canal systems to provide for this influx of settlers for the next ten years. The settlers should understand, however, that there are difficulties in the way of irrigation in California, as there are wherever irrigation is practiced. A brief review of some of these may not be out of place.

It has been stated that nearly 1,375,000 acres of fertile valley land are now under ditches, but unirrigated. Much of this land has been cultivated for years, but it does not necessarily follow that it is ready to receive water. It may cost on an average of $15 per acre to construct permanent farm ditches and to prepare the surface for irrigation. The exact cost of this depends upon the method of irrigation to be followed and the degree of refinement practiced in the preparation of the ground. Definite statistics and figures regarding this are available in numerous publications, but notably in Bulletin 145 of the Office of Experiment Stations of the United States Department of Agriculture. This bulletin tells not only the experience of irrigators in California, but of irrigators throughout the West. If the task of preparing land is attempted by settlers from the humid states without their first making every effort to avail themselves of the experience of older irrigators, partial failure, at least, will be very apt to result. And, in addition to the perplexities of preparing land for irrigation, others equally trying are quite sure to be encountered in applying water to land. Most beginners use too much water. The evils of this, including the waste of valuable water and injury to crops and soil, are apt to be considerable, and every effort should be made to see that they are avoided. Requirements and practice vary with localities, but in every locality there are some careful irrigators whose advice, well mixed with common sense, will help to guide the newcomer along a safe path.

Besides the practical difficulty of preparing land and applying water, the irrigator in California must give careful attention to problems of the rightful ownership and equitable distribution of water. Nature usually provides an abundant quantity of snow on the elevated ranges to supply the soil of the valleys with the requisite amount of moisture, provided that it is properly husbanded or made available for use at the proper time by storage; but the State, unfortunately, has failed to make adequate provision for determining the rights of claimants to water, or for distributing to each his equitable portion. As conditions now exist, some receive too much, while others receive too little. It is to be hoped that before long the State will do as much toward protecting the rights of irrigators as some of the other Western States have done. In the meantime, with their characteristic determination to do things in spite of difficulties, Californians are making the best they can of the opportunities that are afforded. With more Californians, these difficulties will grow less, because with an increase in population and a higher development of irrigated agriculture there is bound to result on the part of the State at large a better understanding of the needs of peaceful and successful growth.

AGRICULTURE IN CALIFORNIA.

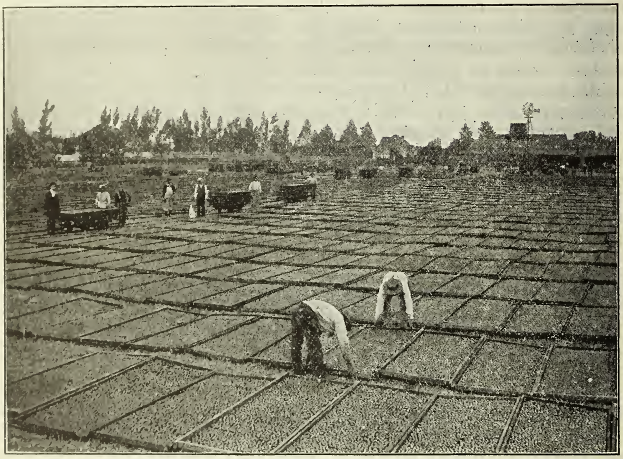
By Arthur R. Briggs.

Under varied conditions, farming in California has more features of interest and presents greater opportunities than in any other state. The wide range of products and the peculiarities of soil, climate and weather afford abundant scope for the energies and experiments of the wideawake tiller of the soil. Despite the impression that prevails in states east of the Rocky Mountains, the rules under which farming is profitable elsewhere are applicable here. The stock-raiser in any other part of the United States would not be at a loss to understand the features of difference in stock-raising in California from those which obtain in the older states, and to adapt himself to them. The successful and intelligent farmer in any other state would be equally successful here, and his experience wherever gained would be as useful. If the business involves less expenditure and less care on account of more favorable conditions, this would not necessitate the unlearning of anything, nor operate against the introduction of methods that have been successfully employed in other states. This statement applies to all branches of agriculture, for the reason that farming, like any other occupation, involves a fundamental knowledge, fortified with practical experience, and the intelligence to understand the importance of adapting that knowledge and experience to different conditions.

GRAIN BARGES ON THE SACRAMENTO RIVER.

When it is understood that California, the second state in size in the Union, has a total land area of 155,980 square miles, or 99,827,200 acres, of which 28.9 per cent, or 28,828,931 acres, were included in farms when the census of 1900 was taken, some general idea of its magnitude as a farming area is received. But no part of California has yet been developed to its capacity, either as to products or in the selection of such as are ultimately to be of the greatest profit. Intensive farming has been exemplified in several counties, but not one of them has its whole cultivable area in crops. Another consideration in estimating the agricultural possibilities of California is that the soil and climate are favorable for the growth of all the products—that is, valuable and high-priced crops—which made the region around the Mediterranean unique and gave it an exclusive trade, until California intervened; also, that here in the same localities and in adjoining tracts, the raisin, the fig, corn and other cereals, and all the vegetation and fruitage common to the strictly temperate zone, thrive to perfection.

That the extensive grainfields of former years have been or are being converted into farms of less acreage devoted to a new cultivation, and that the combined harvester, which cuts, threshes and sacks the grain ready for market, with its thirty-two mules as a propelling power, is gradually being supplanted with the machinery suited to smaller holdings, are evidences of a new and more modern civilization which is in the line of industrial progress. But this does not remove California from the list of large cereal production.



DRYING FRUIT.

Agriculture in California, it should be understood, has passed through several phases. Immediately after the subsidence of the characteristic era of placer mining, the cultivation of cereals began on a very large scale. Fruit was considered to be only of advantage for home needs. When it was discovered that green deciduous fruits could be successfully marketed as far eastward as the Atlantic Coast, and ultimately in Europe, and that the distribution of canned and dried fruits might be effected on a larger commercial scale, other branches of farming began to attract attention. Intelligent experiments led to the discovery of many fruit varieties that could be successfully grown and marketed.

The limit of products that may be grown in California is co-extensive with the range of products in all semi-tropical and strictly temperate lands. Means have been discovered to pollinate the fig, so that in California the Smyrna fig is successfully produced, and promises to supply the world. That this is no idle dream is shown in the fact that already California raisin-producers, after but few years' experience, practically have the whole United States as a customer. The prunes of California have driven French prunes largely from the American market, and are pressing the foreign market for a leading position. California dried and canned fruits have secured the trade of the United States and have for several years been extensively exported to Europe and to other parts of the world.

No agricultural experiment that has ever been tried in California has been a failure from the viewpoint of production. It is accepted as a fact that "everything will grow in California." The great variety of elevation and of climate provide all conditions essential to plant growth. The most forbidding deserts bloom like the rose at the magic touch of water. Plenty waits only industry, intelligently applied, to give large rewards in all parts of the State, with the exception of the higher altitudes in the mountains. The foothills and the valleys, the interior and the coast counties alike, are prolific in agricultural products. In the northern and central counties of the State crops have been annually produced at commercial profit without artificial irrigation; but it has been demonstrated that artificial irrigation not only increases the yield greatly, but is an assurance of success. Wherever there are well-established irrigation systems, fruit crops are certain and large. The southern counties of California have from the beginning been compelled to rely upon artificial irrigation, the rainfall south of the Tehachapi Pass being less than in the counties farther north. The northern and central counties have also of late years created large and successful irrigation systems.

The beet-sugar industry is capable of large increase. Experience and scientific experiments, as well as climatic conditions, attest the superior merits of California for sugar-beet growing.

The opportunities for development of tobacco-growing are recognized. The peculiar quality of soils in California renders fertilizing unnecessary for the tobacco plant, which is a material saving as compared with other states. The absence of frost during the growing season is a feature of importance in the cultivation of tobacco. Parties most familiar with tobacco-growing contend that it will ultimately be largely engaged in and be profitable here.

Livestock-raising is very largely and successfully engaged in. The foothill and mountain districts, at one time erroneously considered among waste lands, furnish rich pasturage—the higher mountain elevations in summer, and the foothills in winter—thus giving favorable conditions the year around. Animals in this State mature and reach their growth at an early age. A two-year-old animal attains about the size of a three-year-old in other states. A large area of alfalfa during the last few years has added greatly to the livestock interests.

The breeding of horses and mules has been a prominent factor in agricultural development. California thoroughbred horses have stood in the front rank for many years.

In the earlier development of California sheep-raising was a leading industry. In 1876 sheep numbered nearly 7,000,000 and the annual production of wool reached over 56,500,000 pounds, bringing over $10,000,000 to the State. Other agricultural pursuits became more profitable, besides the demands of increased population displaced sheep husbandry, and after 1876, sheep-raising declined in importance. It is, however, still a large industry, both for mutton and for wool, and will continue to be, as the ranges unsuitable for cultivation in the foothills and mountains are well suited to this industry. The present product of wool for the State aggregates about 22,000,000 pounds.

Hogs are extensively raised, but not in sufficient numbers to supply home needs. With the increased acreage in alfalfa and the extension of the dairy interests this branch of farming is on the increase. Indian corn, the great product of the Middle West for fattening hogs, is lacking in the State, and its substitute is barley, which is found to be equally well suited to that purpose. This branch of farming is capable of large increase. On account of the quick returns and the sure profit it affords, hog-raising is attracting much attention.

Despite the fact that every possible condition favorable to the poultry business exists, large quantities of eggs and poultry are imported annually. It may surprise the farmers in the East and West when the fact is known that some farmers in California send to the town store for butter, eggs and chickens. Eggs and chickens are generally the by-product of the Western farm, but they go a long way toward the support of the family. The California farmer has yet to learn the value of the farm by-product.

The production of honey is worthy of consideration. In the central and southern portions of the State, and to some extent in Northern California, the business is made a separate occupation; the output is large and finds market in the East and West. As a by-product of the orchard and farm, bee culture has value. In orchards it has been found that bees aid in the pollenization of the fruit-tree blossom.

It will, therefore, be seen that agriculture in California covers a wide range and affords opportunity for important development. The last quarter of a century has given demonstration sufficient to justify expectation far beyond any present development. The application of scientific methods is bringing into this department of industry intelligence and capital from various parts of the world that promises great results. This, coupled with peculiar climatic conditions, gives to farm life and the country home, features of attraction hitherto unknown.

Most of California's oranges are grown in the southern and lower central parts of the State; practically all the fresh deciduous fruit was shipped from Northern and Central California. The raisin center is in Fresno County and vicinity; the prune center is in Santa Clara County and vicinity; of the dried fruit over eighty-five per cent goes from the northern and central portions of the State, and these sections give an exceedingly large percentage of the canned fruits; the walnuts are principally grown in the south, while the almonds are mostly from the north; the fresh peaches, pears, cherries, plums, apricots, etc., nearly all go from north of the Tehachapi Mountains, which divide Southern California from Central and Northern California. The annual production of wine is now about 30,000,000 gallons.

EDUCATIONAL FACILITIES IN CALIFORNIA.

By Robert Furlong.

Whatever advantages in soil, climate or products a country may possess, the social conditions must also be attractive to make the place desirable for family residence.

California has been endowed by nature with a fertile soil, with a climate unsurpassed, and with rich and varied products that are yielded in abundance. Her citizens, emulating nature's example, have in like liberal spirit established those agencies that contribute to man's social enjoyment.

Schools, churches, libraries, fraternal and other civic organizations are general throughout the State. None of these agencies for good society are wholly lacking, and, except in sparsely settled mountain regions, all are accessible to every resident. Nor are these institutions of the primitive type, but are modern and, as a rule, housed in well-apportioned buildings.

Of the several social factors named, none is closer to the hearts of the people than the school. In the country the schoolhouse is the central place of interest, and the school the bond that unites many families into one district community. In the city it is valued as an important agency in the training of youth, and considered necessary for good citizenship.

Few, if any, other States or countries have made such liberal provision for a general system of public education as has California. The founders of the State over fifty years ago inserted in its Constitution a section providing for the education of youth. This soon after led to the enactment of school laws, to the establishment of schools and to the building up of a State school system. California's educational system is a growth, the growth of half a century of careful cultivation.

Modeled originally from some of the best systems then in use in older states, it has since been many times modified to meet the needs of a rapidly developing population. In its present advanced form it is recognized my many educators as being the most nearly perfect system of public education in America. Its standards are high, its scope is broad and comprehensive, covering the whole field of school and college education.

To the intending immigrant a knowledge of the educational facilities the State has to offer to its residents is particularly desirable, for it is generally acknowledged that where school facilities are lacking few, if any, parents will care to rear their children, even when other conditions are favorable. On the other hand, a good school nearby often determines the location of the future family home. It can here be truthfully stated that there is no community in California without a school. Elementary schools instructing in all the essentials of an English education are general. The law requires the establishment of such schools and provides for their maintenance.

The conditions under which a new school district may be organized are readily complied with where convenience or necessity indicates a change should be made. By the subdivision of a large district a new community may secure a school where one has not previously been conducted. In this way school districts have been multiplied throughout the State. Many of these have a single-department rural school. When school attendance becomes sufficiently large, several teachers are employed and the pupils are classified into primary and grammar departments. Rural schools of this character are numerous in the fruit sections where the population is dense. Such schools have all the advantages of well-equipped city schools. Towns and villages have graded schools of several departments similar to the graded rural schools described.

Every city is a school district of itself and has a Board of Education and a City Superintendent to direct the work. Each city has its own course of study. Because of the large teaching force, close grading can be secured in a city department. This permits of a course of study somewhat more elaborate than that prescribed in the County Manual for schools outside city limits. Special supervisors for such studies as drawing, vocal music, manual training and physical education are often employed in city schools to aid the regular class teachers. A teacher in a city department seldom has more than one grade of pupils, whereas a teacher in a rural school usually has several grades.

It does not follow, however, that good work cannot be done in a school of mixed grades. Many of the brightest students in the high schools and in the college courses have come from country schools having a single teacher. It should be borne in mind that this district school with one teacher, so common in the rural sections of California, is an important factor in the State's educational system. It is of a much higher class than the rural schools of many of the older states.

The instruction in the California country district is intended to cover the whole field of elementary education. The pupils of such schools are classified and graded the same as are pupils of town and village schools. A county course of study is the same for all schools, except those in cities. Such a course is followed with nearly as much precision in a single-department country school as in any other class.

The legal qualifications of teachers are alike for like grades of certificates, the requirements being the same for country and city. Perhaps in no other State or country must teachers in rural schools hold certificates as high as are held by their fellow workers in the city department. These observations are made here to show that a country residence in California does not to any appreciable extent deprive families of the best school privileges. The State aims to educate all of its children, giving to all like privileges, so far as conditions will permit. To this end, through State and county support, appropriations amounting to over ten millions of dollars per year are expended on the public schools. This serves to maintain the schools during eight to ten months in the year. All cities, towns and many country districts have their schools in session ten months each year.

The elementary schools described in the foregoing are objects of special favor by the State, as the State school fund is used exclusively in the payment of their teachers. It is in them that the great mass of the children of California receive their early education. As previously stated, the course is broad and full, including all branches below the high school.

The teachers employed are well qualified for their work, many of them coming to it from professional training schools. But these elementary schools present only one feature of California's educational system. Secondary or high schools form another and a higher class, presenting a different phase of educational activity.

These secondary schools have academic courses that prepare pupils for college entrance. Many of them have additional courses that are elective and do not contemplate later university work. Admission to the secondary schools is to pupils who have finished the elementary course. There are three classes of these schools in the State, known as "city high schools," "county high schools" and "union district high schools." All have much the same plan and purpose, differing only in details of administration and support. Revenue for the maintenance of these high schools comes in part from the State through direct appropriation, but is chiefly levied upon the locality maintaining the school.

Union district high schools are multiplying rapidly throughout the State. They are formed, as the name indicates, by a union of several districts that jointly furnish students and support for one central high school. All taxable property within the area of a union district shares equally in the expense. This class of high school is very popular in the rural sections, as it brings within the reach of country homes a school that gives all necessary preparations for college. There are now few counties in the State that have not one or several schools of this class. They have in general good, substantial buildings, costing variously from fifteen thousand to a hundred thousand dollars each. City high schools are increasing in number also.

The teachers employed in all high schools must have attainments of a high order. Seldom any are legally qualified who have not a college degree from some university of good standing.

There are also a number of private academies, military schools, convents and other private institutions of learning of recognized merit, in different parts of the State, that fit pupils for college. These, as a rule, charge tuition. Families preferring private education for their children have little difficulty in finding select schools of the kind desired, whether secular or sectarian. Many of the church denominations have colleges and seminaries, as well as schools of lower grades, in which religious instruction is part of the course. There is an extensive system of parochial schools throughout the State, limited mainly to the cities and larger towns.

The higher education is represented in California chiefly by two great universities that are classed among the leading institutions in America. These are the University of California at Berkeley, Alameda County, and the Leland Stanford, Jr., University at Palo Alto, in Santa Clara County. They are less than fifty miles apart, centrally located and easily reached from all parts of the State.

The first-named is part of the State's public educational system. Maintained at public expense, its doors are open free to all students of either sex who hold proper credentials for admission to its colleges. In the number of its students, the wide range of its college courses and the general facilities that this institution presents for students' work, "Berkeley" takes high rank among great universities. Branch colleges for vocational study and for scientific research, belonging to the university, are located in different parts of the State. Of these a group of colleges is in San Francisco, in which law, medicine, dentistry, pharmacy, veterinary surgery are pursued as professional studies. Tuition is charged in some of these professional courses. The Lick Observatory, perhaps the best-known astronomical station in the world, is a part of the University of California, on Mount Hamilton, near San Jose. Experiment stations for scientific research are also under the direction of the State institution at Berkeley, but are located elsewhere.

No less known or noted is "Stanford," as is popularly called the most richly endowed university in the world at Palo Alto. Its history and that of its illustrious founders is so well known as not to need review here. It is not due to its liberal endowment, however, that this grand university has become known to the educational world. Its plan and purpose, as designed by its founders, its policy as a university, combined with the strength of faculty, gave it high rank from the beginning, which position it has since successfully maintained.

Both of these grand institutions for the higher education are open, practically without tuition, to the youth of California. No State in the Union can offer better than this—few, if any, as good.

There are a number of other institutions for the higher education, of lesser rank than the two named, that confer degrees. They are colleges of good standing, mostly under the control of some religious sect and, as a rule, supported by tuition fees.

It will be seen that facilities for the higher or college education are not behind those of older States. In some particulars they are better, which fact induces many students to cross the continent for the purpose of study at the California universities.

Besides a State Polytechnic School, located at San Luis Obispo, there are schools of mechanical arts, of mechanical trades and of industrial or manual training.

There are five normal schools conducted by the State for the professional training of teachers. These are so located in different parts of the State that some one of the schools is easily reached by students from any residence section. From these State normal schools chiefly come the great army of teachers employed in the grammar and primary schools of the State. The professional standard is high for teachers even in the lowest grades. Superintendents of Schools, Supervisors, Inspectors, Boards of Education for cities and for counties, together with a State Superintendent of Public Instruction, direct the work of education in the public school system.

Upon the whole, it will be seen from the foregoing that education in California occupies a prominent place, that it is general throughout the State, that it is free to every resident, even in its highest institutions. From the kindergarten through the various elementary and high school grades to the college, inclusive, education is without direct cost to the youth of the State. Families desirous of making homes in California will find here every facility for the education of their children.

The following is from Circular No. 5 issued by Edward Hyatt, State Superintendent of Public Instruction:

Number of Teachers. There are about 8,000 primary and grammar school teachers, and about 1,100 high school teachers. Of these, about one-eighth are men.

Pupils Enrolled. There are about 300,000 primary and grammar school pupils enrolled, and about 30,000 high school pupils. Their schooling costs about $10,000,000 per year, for all purposes. Six millions of this is for teachers' salaries.

Teachers' Salaries. The lowest salaries are about $400 per year, for the teachers of small rural schools. Salaries for primary and grammar schools range from $400 to $800 per year, with an average of about $600. Principals get an average of about $800. High school teachers receive from $700 to $1,500 per year, with an average of about $1,000. High school principals average about $1,350. The cost of board ranges from $16 to $30 per month, averaging about $24.

Terms and Times. The term of school varies from 8 to 10 months per year, averaging 9 in primary and grammar schools, 9½ in high schools. No school can fall below six months. The terms usually begin in September and close in May or June, although there are many exceptions in the high mountains and along the coast.

CALIFORNIA'S CALL TO THE IMMIGRANT.

By John P. Irish.

It is not pretended that California supplies any specific from the wealth of her soil and sunshine that will cure unthrift, bad judgment, and lack of faculty, or make of the do-less a doer. But there is legitimate basis for the belief that here the average man may work in greater comfort more days in the year, and earn his bread easier, than under the conditions that prevail in any other state or country.

California is a winterless land. No deep frosts chill the ground; vine and fig tree do not have to thaw out as a preliminary to going into business as fruit-bearers. All stone fruits, and the fig, pomegranate, orange, lemon, lime, pear, and apple are precocious bearers. The peach will bloom the second year from the pit. On the Mediterranean the olive fruits meagerly at seventeen years of age; here it bears a full crop at seven. In the East he must be a young man who plants a tree expecting to repose in its shade or to eat its fruit. Here old men may plant, and surely expect to enjoy the results. The growth of animals is not checked here by the withering winter, and a yearling horse is the equal of any Eastern two-year-old.

But, it may be asked, is not this precocity of animate and inanimate life compensated by early decay? The answer is, No. That rule has here its exception. The peach tree that blooms before the shell of the pit that bore it is decayed, bears on for thirty years, or more. Olive trees that furnished oil for the sacraments of the old Mission Fathers a hundred years ago, shade the graves of the gardeners who planted them, and ripen their yearly crop with unabated energy.

But men fail in California? Yes. Men who buy land and hire it planted and worked, running it on the absentee landlord system, fail here and everywhere. So do men fail who run manufactures and trade on the same system. But men who take here only so much land as they have the means and the ability to conserve, and can properly till and tend with the labor of their own families, do not fail; for here Nature helps the industrious hand, and nowhere else does intelligent labor add as much to the value of the land, for the reason that here Nature holds one handle of the plow.

The advantage that California has in climate where growth and production go on without pause is seen when the farmer finds his vines and trees, fields and truck-patch producing something for the market every month in the year.

What effect does the climate have on the cost of living? Where the pastures yield natural forage, green or dry, every day; where the water never freezes; where vegetable growth goes on forever, and the storage of vegetables for winter use is never necessary, because they are growing and fresh daily, it is natural that the cost of living should be less than where the summer and fall are spent in hard labor to store food and fuel against the long winter that suspends production. Beef and mutton from the ranges; fish from the waters; fruits and vegetables reach market here in a condition for use more cheaply than elsewhere.

The economic value of climate should be considered in selecting a home; first, in respect to the health of the family, and, second, in respect to the number of days yearly in which your vocation may be followed. California, it may be said, has no endemic diseases. Except in the high Sierra Mountains the snow does not impede outdoor occupation. There are no tornadoes or chilling blasts, nor are there any sudden changes in temperature which imperil life. The heat in the valleys, though high as indicated by the thermometer, is not excessive enough to prevent labor in the fields on the hottest days; because the air being dry, the latent heat of the body is rapidly eliminated, and the blood is kept cool. It will bear repetition that every day in the year is a working day. It follows that it costs less to live in California than in any other state in the Union, and the comfort of life is greater.

The intending settler should fix firmly in his mind the topography of California. We have a winter season called "wet," and a summer season called "dry." In the winter months the average rainfall is about twenty-five inches, distributed through four months of the year, and this is ample to insure abundant crops. California is 850 miles long. Her coast line extends as far as from Boston to Savannah. At the same altitude the climate is practically the same in the north as in the south of the State; hence San Diego in the south and the country 600 miles to the north produce identically the same crops. On the west slope of the Sierra Nevada Mountains, at an elevation of from 400 to 1,000 feet, is the famous foothill warm belt, stretching from Shasta to Kern County, and noted for the superiority of its fruits, including the fig, orange, lemon, and olive.

There is one great valley; its south end rests on the Tehachapi Mountains, and its north end is lifted up by Mount Shasta. This great trough sags in the middle, and the rivers that run from each end escape into San Francisco Bay through a common delta. From these rivers we name each end of the valley, thus giving the impression that there are two valleys. The north end of the valley is the valley of the Sacramento, with an area of 4,000,000 acres. The south end is the valley of the San Joaquin, with 7,000,000 acres. This valley is the seat of wheat and raisin culture. On the west of this great valley rises the Coast Range, in which lie a number of fertile and extensive valleys, such as Santa Maria, Sonoma, Santa Clara, Vaca, and Suisun. In most of these fruit growing is the principal industry. The slopes of the Coast Range toward the sea and the high Sierras, are favorable for dairying. To some extent, therefore, the settler is guided in the selection of his residence by the business he desires to pursue.

We expend annually over $7,000,000 for the maintenance of our public schools. The State is entirely out of debt. The financial report shows that the State debt is about $2,500,000, but this is only a form of statement. There is that amount of State bonds, but the bonds are owned by the State and are covered into the State school fund. The State pays the interest to the State school fund, which is annually apportioned to the public schools. If California has a reputation for public extravagance it is undeserved, and the intending immigrant need not hesitate for fear his interests will suffer by reason of high taxation, due to the waste of public money.

It is not given to all men to be wealthy; but every original fortune in this country was founded in some man's determination to make a living and provide for life's decline when labor is impossible. Immigration flows where a living may be made under the most favorable conditions. The variety of resources in California invites an equal variety of tastes, training, and experience. If a man desires to mine, along the western flank of the Sierra Nevada Mountains for 800 miles is the world's greatest gold field. It has already yielded $1,000,000,000 from the merest scratching of its surface.

Horticulture here rises to the rank of a profession. Our soil and climate are so adapted to it that fruits from every zone may be grown. The clemency of our climate and its halcyon quality invite enterprise and ingenuity to experiment in all horticultural refinements. No equal area of the earth's surface has produced profitably a variety of the fruits of tree, vine, and shrub equal to that of California.

The beginning of all successful manufacture is in the transmutation of the most abundant raw material into more merchantable or more permanent forms for transportation and use at a distance. The State is not yet sufficiently supplied with plants for drying and canning our surplus fruits, or for reducing them to fine jellies, jams, pickles, pastes, etc. Immigrants who have a taste for these arts will find here a growing field.

No place presents better facilities for variety farming as it is practiced in the Mississippi Valley. With a small tract of land which may be cared for by the labor of an ordinary family, with some orchard or vineyard bordered with almond and English walnut trees, producing some alfalfa and grain, and carrying some cows, pigs, and chickens, the owner will find something produced for market every day in the year, while his family living will nearly all come direct from the soil he tills.

The reader will find the subjects herein generalized treated in greater detail in other chapters of this book. The treatment is conservative, and is intended to invite that careful personal examination which the prudent man makes who desires to better his condition by changing his abode.

HISTORICAL SKETCH OF CALIFORNIA.

To justify and strengthen the claims made of the wonderful development of California in the short time of the sixty years of her statehood, it is well to give in connection with the statistics and facts set forth in the preceding pages, a short resume of her history.

It is not only rich in romance, but it presents many and diverse elements in its making. The modern history of the State has its beginning in 1533, when Fortum Jimenez, in sailing between Mexico and the Philippines, sighted the land of the lower peninsula. Two years later, instigated by his desire for further information about the unknown land, Cortez landed on the shores of the lower end of the peninsula, and through its apparent similarity to those mystical islands spoken of in the old Spanish romance, ''Sergius de Esplandian,'' of which the author speaks in glowing terms and says it is a ''group of islands, and on the great island of California there is an abundance of gold and precious stones.'' Believing that this land resembled that land, Cortez named it California, and established a colony.

In 1542 Cabrillo sailed along the shores of California, and something more than a century later Viscaino explored it, mapping the bays of San Diego and Monterey. In 1579 Sir Francis Drake, who held a roving commission from Queen Elizabeth to ''prey upon all Spanish ships,'' sailed along the shore past the Golden Gate, and beached his ship at a cove which is now known as ''Drake's Bay,'' a few miles north of San Francisco Bay. The English language, consequently, was spoken in California before the pilgrims landed on Plymouth Rock. Owing to the bold headlands of the cliffs along the coast, Drake named the country ''New Albion.''

Two hundred years after Drake raided the Spanish galleons loaded with the treasures of the Orient, Spain desired to extend her possessions to the north on the Pacific Coast, and in 1769 Gaspar de Portola, who was appointed governor of the Californians under royal decree, led an expedition into California for the occupation and fortification of the ports of San Diego and Monterey, and Father Junipero Serra, a Franciscan priest, was given permission to accompany the expedition and to establish missions under protection of the soldiers.

The expedition was divided into four detachments which set out both by land and by sea, and on July 16, 1769, the mission at San Diego was founded after the expeditions had placed the port in good condition for defense. Portola started forward on his mission to occupy Monterey Bay, as soon as possible, in spite of the depleted and exhausted condition of his forces. He advanced northward, but failed to locate Monterey Bay and passed on to the shores of San Francisco Bay, which were reached on November 2, 1769, by the advance explorers, and by the main body and its leader on November 4th. A second expedition was sent forward during the following year, after the return of Portola and his party to San Diego, and Monterey Bay was rediscovered on June 3, 1770, and the presidio and mission founded. The Presidio of San Francisco was established September 17, 1776, and the mission on October 8th of the same year. In 1823 the last mission in California was established at Sonoma.

In 1822 Mexico severed her connection with Spain and claimed territory to the north even further than exploration had been made. Coming from the opposite direction, Russia also established colonies, and for a time there was divided rule of the country now comprised in the State. The new republican government of Mexico was antagonistic to the church, and the Mexican congress passed a law providing for the dispersion of the Franciscan fathers and the division of their vast holdings among the settlers and Indians. The missions were stripped of their wealth, the buildings were neglected, the Indians scattered and the land was divided up into large ranches which were given to favorites of the administration.

When the United States, realizing that a war with Mexico was imminent, sent General John C. Fremont to explore and examine the land, it looked for an easy conquest and acquisition of a rich territory. By this time a large number of

Americans had straggled across the plains, and round by way of the isthmus. A strong spirit of local independence developed among them, which led to jealousy of Mexican control and many bitter political feuds.

All the circumstances connected with the American seizure of California will probably never be known, as all the actors of that drama have passed away and the National archives contain no public documents bearing on it. Fremont was sent on what was supposed to be a scientific expedition, but he received a verbal message sent from Washington through an officer dispatched for that purpose. He at once made his way to Sutter's Fort at the point where Sacramento now stands, and thence to Sonoma, where he organized a battalion of mounted riflemen. On June 14, 1846, after Fremont had gone south, the Americans at Sonoma took possession of the town and raised the Bear Flag. On the 5th of July following, the Bear Flag party announced its independence, made Fremont governor, and declared war against Mexico. Two days later Commodore Sloat, under orders from the United States Government, raised the United States flag at Monterey, seizing the town and imprisoning the Mexican officials, and at the same time Captain Montgomery raised the flag in San Francisco. Two years later, in 1848, by treaty with Mexico, California became a possession of the United States.

On January 24, 1848, John W. Marshall discovered gold in the tail-race of Sutter's mill, and when this fact reached the outer world there was the first great rush to gold-fields, and within two years more than 100,000 men of all nations had settled in the State.

Upon its acquisition United States revenue laws were extended over the new territory, and San Francisco was made a port of entry, but nothing further was done toward establishing government. Politics entered largely into the question of California's disposition, and the question of slavery or no slavery was raised. But the people of California tired of Congress' dilatoriness and in 1849 they framed a constitution, in which it was declared that no slavery should exist in the State. With this constitution representations were made to Congress, and on September 9, 1850, California was admitted into the Union without having gone through the preliminary of having a territorial form of government.

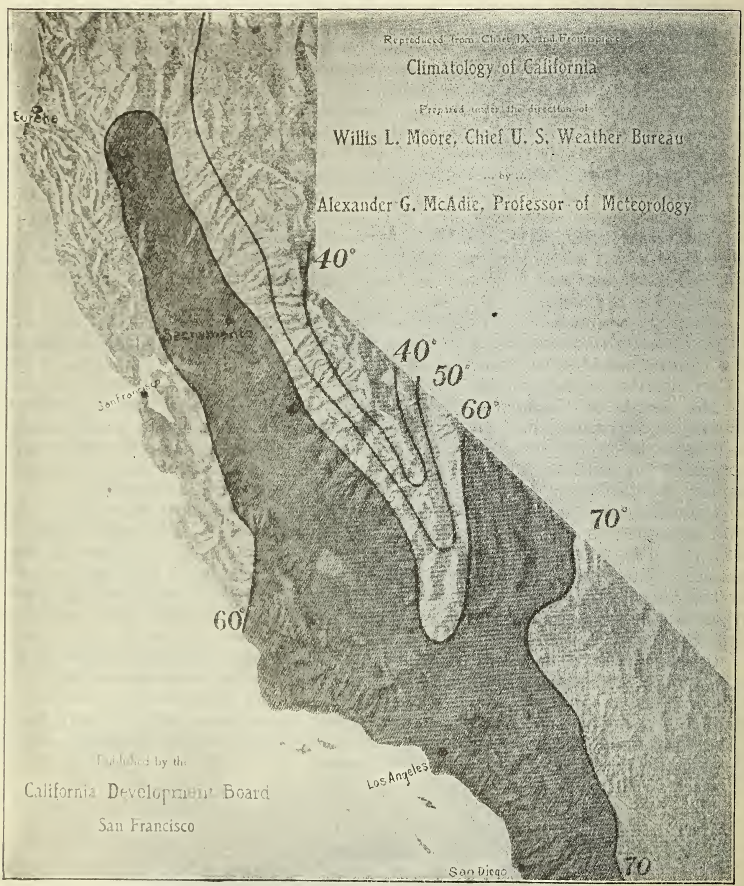
Following the gold excitement those who came under the lure of the yellow metal remained to till the ground, and the second "gold" discovery dates from the early '70s, when the navel orange cultivation was begun. Like Marshall's discovery of gold it was the magnet which drew thousands to California, and was the beginning of the great horticultural industry which has grown to such an extent that it now exceeds every year, the highest production of gold ever known in the State.

Its later history embraces progress in cultivation, and to-day California exports prunes to France, raisins to Spain and Italy, wine to every country in Europe, oranges to all the world and will soon take the fig trade of the world from Smyrna. It produces more wine raisins, prunes and citrus fruits than all the rest of the United States put together, and its beet-sugar is rapidly becoming a formidable rival to the cane-sugar of tropical lands.

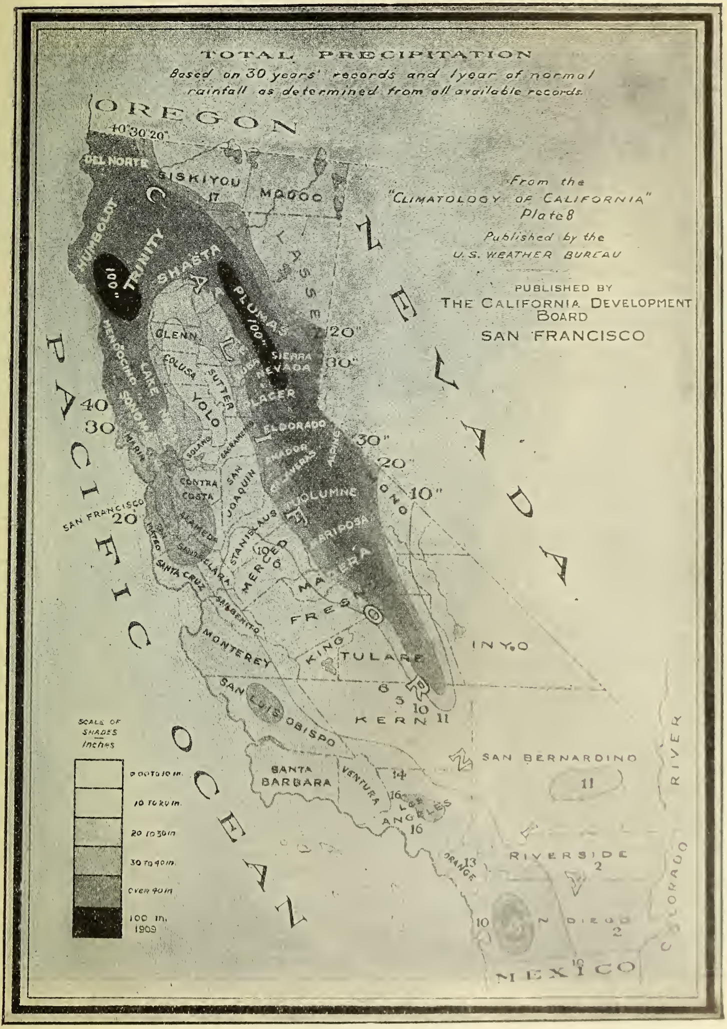
ALCATRAZ ISLAND.

CALIFORNIA'S THERMAL BELT

Mean Annual Isotherms Based on 30 Years' Normals


Reproduced from Chart IX and Frontispiece
Climatology of California
Prepared under the direction of
Willis L. Moore, Chief U. S. Weather Bureau
... by ...
Alexander G. McAdie, Professor of Meteorology
40°
40°
50°
60°
70°
60°
70°
Eureka
Sacramento
San Francisco
Los Angeles
San Diego
Published by the
California Development Board
San Francisco

Note.—60-70 degrees shown in **black.**



RAINFALL MAP.

THE MEADOWS, YOSEMITE VALLEY.

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Brown-Walker-Simmons Co.	FRANK L. BROWN
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Halsey & Co., N. W.	
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Mercantile National Bank of San Francisco	W. F. BERRY
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Balloon Route Excursion Co.		789 Market Street
Banca Popolare Operia Italiana		Montg. Ave and Montg. St.
Bancroft, Philip	Attorney	Monadnock Building
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Bank of Italy		Montgomery and Clay Streets
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Bernstein, H. & Co.	Mission Toggery	3293 Mission Street
Bill, L. H. & B. I.	Auto Supplies	132 Valencia Street
Billings, L. H.	Clothing, Hats, etc.	1981-3 Mission Street
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Brizzolara & Sons, Inc., L.	Coal and Wood	117 Jackson Street
Brooks-Follis Electrical Corporation		44 Second Street
Brown, Chas. & Sons, Inc.	Stoves, Crockery	871 Market Street
Brown, Edward & Sons	Insurance	310 Sansome Street
Brown, Herbert F.	Real Estate	Phelan Building
Brunswicke-Balke-Collender Co.	Billiard Tables and Bar Fixtures	767 Mission Street
Bryant, Dr. Edgar R.		350 Post Street
Buchanan, Wm.	Brush Manufacturer and Hardware	623 Sacramento Street
Bullock & Jones Co.	Tailors	Post and Kearny Streets
Bunster & Saxe Co.	Furniture and Carpets	Eddy and Larkin Streets
Butler, Schutze Co.	Wholesale Millinery	731 Market Street

Cahn, Nickelsberg & Co	Wholesale Boots and Shoes	557 Mission Street
Caire, Justinian Co	Hardware	573 Market Street
California Artistic Metal & Wire Co		349 Seventh Street
California Fig Syrup Co		16th and Church Streets
California Fruit Canners' Assn		112 Market Street
California Glue Works		Merchants Exchange Bldg.
California-Hawaiian Sugar Refining Co		254 California Street
California Hydraulic Eng. & Sup. Co		523 Market Street
California Ink Co		33 Clementina Street
California Insurance Co		550 Sacramento Street
California Jewelry Co		704 Market Street
California Optical Co		181 Post Street
California Paper & Board Mill Co		310 California Street
California Paper Box Co		3175 17th Street
California Pine Box & Lumber Co		Flood Building
California Press	Printers	50 Main Street
California Rug Co.		2147 Lombard Street
California Salt Co.		16 California Street
California Suburban Home Co		1480 Market Street
California Sugar & White Pine Agcy		Flood Building
California Transportation Co	Bay and River Steamers	Pier 5, Jackson Street
California Wine Assn		180 Townsend Street
Callen, M. D.		Post Office Building
Campi's	Italian Restaurant	605 Montgomery Street
Canadian Bank of Commerce		Sansome and California Sts.
Capelle, Robert	Steamship Agent	250 Post Street
Capwell, H. C. Co	Dry Goods	12th and Washington Streets, Oakland
Carl Cooperage Co		54 Boardman Place
Carlisle, A. & Co	Stationers and Printers	251 Bush Street
Carlson-Currier Co	Wholesale Silks	Sansome and Bush Streets
Carnegie Brick & Pottery Co.		638 Montgomery Street
Carquinez Brick & Tile Co		259 Russ Building
Carrau & Green	Wholesale Jewelers	112 Kearny Street
Carroll, Paul T.	Men's Furnishings	708 Market Street
Carroll & Tilton Co.	Clothiers	733 Market Street
Cassaretto, John	Contractor	345 Berry Street
Castle Brothers	Coffee, Commission	149 California Street
Castleton, E. Drexel		New York City, N. Y.
Central Coal Co		Spear and Folsom Streets
Central Trust Co		Sutter, Sansome, Market Sts.
Charlton, E. P. Co	5, 10, 15c Store	786 Market Street
Chinn-Beretta Optical Co		120 Geary Street
City of Canton		Oakland
City of Paris Dry Goods Co		Geary and Stockton Streets
City Street Improvement Co	Contractors Street Work	Merchants Exchange Bldg.
Clarion, The	Clothiers and Tailors	867 Market Street
Clarke, D. Ross	Plastering Contractor	708 Pacific Building
Cluett, Peabody & Co	Shirts and Collars	812 Howard Street
Coast Realty Co		Merchants Exchange Bldg.
Coats, M. C.	Advertiser	23 Montgomery Street
Coffey Belting Co		Los Angeles
Coffin, Redington Co	Wholesale Drugs	35 Second Street
Coleman, Robert L.	Cigars	Union Trust Building
Columbia Marble Co		Hanford Building
Commercial Supply Co.	Filing Cabinets, etc.	75 Fourth Street
Commercial Union Assurance Co		Security Building
Compressed Air Machinery Co		Jessie and Ecker Streets
Conlisk, C. W.	Secretary Hotaling Estate Co	Merchants Exchange Bldg.
Continental Building & Loan Assn		Golden Gate Ave. & Taylor
Convey & Sons	Butchers	8 Clay Street
Cook, A. J. & J. R.	Leather	171 Clay Street
Cosmos Cafe		658 Market Street
Cotati Co., The	Real Estate	310 California Street
Cowell Lime & Cement, Henry Co		95 Market Street
Cowen-Heineberg Co	Crockery	529 Market Street
Criswell, Dr. R. B.		Union Square Building
Crocker Estate Co		Crocker Building
Crocker, H. S. Co	Printers, Stationers	460 Market Street
Crown Distilleries		27 Minna Street
Cunningham, Curtiss & Welch	Stationers, Booksellers	565 Market Street
Cutting, C. T.	Manager Lamson Con. Store Service Co	Call Building
Cyclops Iron Works		223 Main Street

Dalziel-Moller Co.	Plumbers' Supplies	543 Mission Street
Davis, J. B. F. & Son	Insurance Brokers	507 Montgomery Street
Day Company, Thomas	Gas and Electric Fixtures	725 Mission Street
Deamer & Stetson	Attorneys	Mills Building
Deckelman Brothers	Barbers' Supplies	162 Turk Street
de Fremery, James & Co.	Importers and Exporters	519 Mission Street
Degen Belting, L. P. Co.	Manufacturers Leather Belting, Etc	260 Mission Street
De La Tour, George	Beaulieu Vineyard	Rutherford, California
De Laval Dairy & Supply Co		101 Drumm Street
De Martini Supply Co.	Confectioners' Supplies	128 Front Street
Denison News Company	Oakland Pier	Oakland, California
Denniston, E. G.	Plating	1349 Mission Street
Detien & Mengel Co	Cafe and Restaurant	97 Market Street
Dibblee Estate Co.		Union Trust Building
Dinkelspiel, J. S.	Diamond Importer	Jewelers' Building
Di Nola, Leon & Co.	Druggist	598 Haight Street
Doak Sheet Steel Co.		Eighth and Irwin Streets
Dodge, D. W.	Railway Supplies	Chronicle Building
Dodge, Sweeney Co	Wholesale Provisions	5 Spear Street
Dollar, Robert, Co.	Shipping and Lumber	160 California Street

Dorgcloh, H. F.	Coast Manager Hamburg-American Line	160 Powell Street
Dorrance Battin Co	Jobbers and Manufacturers' Agents	906 Chronicle Building
Dow Pumping Co., G. E.		179 First Street
Drew, Frank C.	Attorney	Balboa Building
Dun, R. G. & Co.	Mercantile Agency	125 O'Farrell Street
Dunbar-Hansen Co	Produce	322 Drumm Street
Dunham, Carrigan & Hayden Co.	Hardware	100 Kansas Street
Du Pont de Nemours E. I. Powder Co.	West Coast Division	Chronicle Building

Eagle Laundry Co	Laundry	53 Colton Street
Eagle Tannery		26th St. and San Bruno Ave.
Eastern Oregon Land Co		702 Call Building
Easton Brothers	Butchers	1323 Polk Street
Eby Machinery Co		268 Market Street
Ecklon-Metzger Co		Post and Polk Streets
Eilers Music Co		975 Market Street
Eisenberg, A. & Co.	Wholesale Jewelers	Kearny and Post Streets
Electric Appliance Co		726 Mission Street
Ellery Arms Co	Sporting and Athletic Goods	48 Geary Street
Eloesser-Heynemann Co.	Manufacturers Overalls and Shirts	77 Battery Street
Emmanuel, L. & E.	Bar and Office Fixtures	144 12th Street
Eucalyptus Culture Co.		578 Monadnock Building

Fannin & Elmendorf Co	Wholesale Hatters	149 New Montgomery Street
Fee, Grant	Contractor and Builder	279 Monadnock Building
Fisher & Co., Inc		726 Market Street
Fischbeck Soap Co		17th and Rhode Island Sts.
Fisher, L. P.	Advertising Agent	Merchants Exchange Bldg.
Fleishhacker & Co.	Paper Boxes	134 Fremont Street
Fletcher, Dr. Thomas		169 Collingwood Street
Floreston Pulp & Paper Co		Alaska Commercial Bldg.
Folger, J. A. & Co.	Wholesale Coffee and Teas	Spear and Howard Streets
Ford, C. W. R. & Co.	Tailors' Trimmings	164 Sutter Street
Forderer Cornice Works		16th and Potrero
Foster & Orear	Candies, Cigars, News Sundries	Ferry Building
Frank, A. L.	Haberdasher	106 Kearny Street
Fredericks, Joseph & Co.	Furniture, Carpets, Etc.	819 Ellis Street
Freeman, Allan G.	President Continental Salt Co.	629 Howard Street
Freer, Burr W.	Wholesale Jeweler	717 Market Street
French American Bank		108 Sutter Street
French American Wine Co		1821 Harrison Street
French & Linforth	Manufacturers' Agents	Wells Fargo Building
Friedman, M. & Co.	Furniture and Carpets	273 Post Street
Fritch, J. Homer, Inc.	Coal and Wood	110 East Street

Gantner & Mattern Co	Knitted Goods and Underwear	Grant Ave. and Post Street
Garcia & Maggini Co	Commission Merchants	108 Washington Street
Getz Brothers & Co	Wholesale Grocers	530 Davis Street
Ghirardelli, D. Co.	Chocolate and Cocoa	940 North Point Street
Giacobbi, Louis A.	Jeweler	222 Kearny Street
Giant Powder Co., Con.		Kohl Building
Gier Wine, The Theo, Co.	Wine and Liquor Merchants	571 18th Street, Oakland
Girvin & Eyre	Importers and Exporters	Merchants Exchange Bldg.
Gladding, McBean & Co	Manufacturers Terra Cotta, Etc.	311 Crocker Building
Glen, Blair Redwood Co	Lumber	947 Monadnock Building
Globe Grain & Milling Co		Chestnut and Montg'y Sts.
Golden Gate Cloak House		1062 Market Street
Golden Gate Compressed Yeast Co.		26 Mint Avenue
Golden Gate Undertakers		2483 Mission Street
Golden State Asparagus Co		16 California Street
Goodyear Rubber Co		587 Market Street
Gopcevic, Milos M.	Capitalist	233 Sansome Street
Gordon, Eli	Pacific Coast Oyster Co.	90 Sacramento St.
Gorham Rubber Co		50 Fremont Street
Gorrill, William H.	Attorney	First National Bank
Gottlob Marx & Co		Columbia Theater
Graham Mfg. Co., James		531 Mission Street
Grauerholz, H. J.	Wholesale Liquors	2450 Mission Street
Graves-Taylor Hardware Co.		1555 Haight Street
Gray & Co., N.	Undertakers	2198 Geary Street
Gray Brothers	Crushed Rock Company	Wells Fargo Building
Grays Harbor Commercial Co		Foot of Third Street
Green, J. Charles Co.		Stevenson, near 14th Street
Greensweig, George	Wholesale Jeweler	Jewelers' Building
Griffin & Skelley Co	Fruit Packers	16 California Street
Griffith-Durney Co.	Wholesale Commission	Fife Building
Guggenhime & Co.	Dried Fruits	California and Davis Streets
Gullixson Bros. & Co	Furniture and Carpets	2086 Market Street

Haas Brothers	Wholesale Grocers	200 Davis Street
Haas & Sons, Geo	Candy Manufacturers	Phelan Building
Haines, Jones & Cadbury Co.	Plumbers' Supplies	846 Bryant Street
Hall, A. I. & Son, Inc.	Wholesale Jewelers	Jewelers' Building
Hamilton, Luke	Proprietor Dewey House	4th and Howard Streets
Hammersmith & Co	Jewelers	Sutter Street and Grant Ave.
Hammon, W. P.	Mining	Alaska Commercial Bldg.
Hanify, J. R. Co.	Wholesale Lumber	24 Market Street
Harder, P.	Saloon	9 Market Street
Harding, R. T.	Attorney	422 Montgomery Street
Harron, Rickard & McCone	Machinery and Supplies	139 Townsend Street
Hart & Bros., B.	Wholesale Silk	14 Sansome Street
Hartford Fire Insurance Co.		430 California Street
Hart-Wood Lumber Co		Fife Building
Haslett Warehouse Co.		310 California Street

Hathaway, W. L.	Mgr. Mutual Life Ins. Co. of N. Y.	222 Sansome Street
Havens, Wickham	Real Estate	1212 Broadway, Oakland
Hechtman, A. J.	Real Estate	Kohl Building
Heineman & Stern	Provisions	1040 McAllister Street
Heineman, H. M.	Neckwear	1649 Bush Street
Hejninger, C. P. & Co.	Pipes and Notions	687 Guerrero Street
Heins Belting Co., Alex	Leather and Rawhide Belting	2413 Harrison Street
Helbush, H. H.	Wholesale Liquors	Pine and Front Streets
Heller, E. C. & Co.	Clothiers	10 Kearny Street
Henshaw-Bulkley & Co	Engineers and Machinists	19 Fremont Street
Hensley-Green Co.	Real Estate	Mills Building
Hermann Safe Co		126 Folsom Street
Herman, Geo. Co.	Shipping and Commission	310 Sacramento Street
Heskins Clothing Mfg. Co.		730 Market Street
Hettrich, A. L. Co.	Beads, Souvenir and Shell Merchant	508 Washington Street
Heyman, Oscar & Bro.	Real Estate	113 Montgomery Street
Heywood Bros. & Wakefield	Furniture	725 Howard Street
Hicks-Judd Co	Printers and Bookbinders	51-65 First Street
Hicks, Lewis A. Co.	Contractors	Humboldt Bank Building
Hidalgo Plantation & Commercial Co		Russ Building
Hills Brothers	Coffee and Teas	175 Fremont Street
Hilmer, Fred L. Co.	Wholesale Dairy Produce	129 Davis Street
Himmelstern Brothers	Crockery and Glassware	718 Mission Street
Hinoy, The	Ladies' and Gents' Tailors	1610½ Geary Street
Hinton, Russell	Painter and Decorator	846 Ellis Street
Hinz & Landt, Inc.	Importers of Millinery	883 Market Street
Hirschfelder & Meaney	Trunk and Suit Case Manufacturers	172 Sutter Street
Hjul, H. H.	Coffee and Lunch House	448 Montgomery Street
Hoag & Lansdale	Real Estate	243 Bush Street
Hoffman, J., Henry		224 Sutter Street
Hoffman, Rothschild & Co	Wholesale Clothing Manufacturers	516 Market Street
Hogan & Co	Coopers	326 12th Street
Holmes Co., The	Old and New Books	1158a Market Street
Holt Bros. Co	Wagon Material	914 Folsom Street
Honolulu Plantation Co		268 Market Street
Hooker & Lent	Real Estate	503 Market Street
Hooper, C. A. & Co.	Shipping and Lumber	Balboa Building
Hopkins, E. W.	Capitalist	354 Pine Street
Horn & Co	Wholesale Cigars	40 Drumm Street
Horst, E. Clemens Co.	Hops and Barley	215 Pine Street
Hotaling, A. P. & Co.	Dealers in Whiskey	429 Jackson Street
Hotaling Estate Co., The		Merchants Exchange Bldg.
Hotel Colonial		425 Stockton Street
Hotel Dale		1037 Fillmore Street
Hotel Stanford		250 Kearny Street
Hotel Stewart		353 Geary Street
Howard, E. A. & Co.	Lumber Dealers	20 Howard Street
Hulse-Bradford Co	Upholstering Goods	[illegible]86 Mission Street
Hunt Bros		Haywards, California
Hyde, F. A.	Attorney	1255 Broadway, Oakland

Ickelheimer Brothers	Gas Fixtures and Plumbing	441 Sutter Street
Ide, Geo. P. & Co.	Wholesale Shirts and Collars	762 Mission Street
Illinois Pacific Glass Co		15th and Folsom Streets
International Banking Corporation		Mills Building
Iwakami & Co	Japanese and Chinese Goods	435 Commercial Street

Jackson Furniture Co		519 12th Street, Oakland
James, C. L.	Attorney	Call Building
Japanese Construction Co		104 South Park
Japanese Fancy Goods Importing Co		1917 Sutter Street
Japanese Tea Garden		Between H and I Streets and 7th and 8th Avenues
Japan Printing Co	Printing and Publishing	1508 Buchanan Street
Johnson, A. B.		251 Kearny Street
Jonnson & Higgins	Average Adjusters and Insurance Brokers	244 California Street
Jonnson, J. G.	Wholesale Butcher	333 Kearny Street
Jonnson-Locke Mercantile Co	Shipping and Commission	210 California Street
Jones, Edwin	Hardware & Tools	1180 Market Street
Jones, J. Noble Co.	Investments	Monadnock Building
Jones, S. L. & Co.	Importers	209 California Street
Jones-Paddock Co.	Wholesale Coffee and Tea	230 Fremont Street
Joost, Sons & Co	Real Estate	3128 16th Street
Judell, H. L. & Co.	Cigar Manufacturers	20 Front Street
Judis, Alphonse Co.	Wholesale Jewelers	704 Market Street
Judson Mfg Co		819 Folsom Street

Kankoba, Mikado	General Merchandise	1714 Post Street
Karp, Henry	Carpenter and Builder	711 Valencia Street
Katschinski, B.	Philadelphia Shoe Co	825 Market Street
Katz Brothers	Butchers	California Market
Kauffman, Davidson, Semmel, Inc.	Hides and Wool	137 Clay Street
Keaton, R. N.	Vulcanizing Works	616 Van Ness Avenue
Keefe, J. H.	Painter and Decorator	822 O'Farrell Street
Keilus, Charles Co.	The Hub, High Grade Clothiers	Jewelers' Building
Keller, M. J. Co.	Clothiers	1157 Washington St., Oakland
Kelley-Clarke Co.	Merchandise Brokers	214 Front Street
Keystone Boiler Works		Folsom and Main Streets
Kilborn & Hayden	Proprietors Ferry Cafe	32 Market Street
Kisen, The Co.	Japanese Art and Dry Goods	1911 Fillmore Street
Knowles, William	Architect	506 Mutual Sav. Bank Bldg.
Koenig Shoe Co		53 Kearny Street

Kohler & Chase	Pianos and Musical Merchandise	40 O'Farrell Street
Koshland & Co., S.	Wool	110 Market Street
Koster, Frederick J.	California Barrel Co	Monadnock Building
Kreig Tanning Co		1703 San Bruno Avenue
Krome, August	Grocer	1600 Bush Street
Kullman, Salz & Co		Benicia, California
Kutner-Goldstein Co.	General Merchandise	Fresno, California

Lachman & Jacobi	Wines	706 Sansome Street
Lachman, Henry	Vice-President Pacific Blower and Heating Co	725 Monadnock Building
Lafranchi Brothers	Printers	433 Sacramento Street
Land & Water, The 76 Co.		Pacific Building
Lange, M.	Launches	Foot of Washington Street
Langley & Michaels Co	Wholesale Druggists	34 First Street
Larsen, Carl G	Proprietor Tivoli Cafe	50 Eddy Street
Larzelere, L. R. & Co.	Shipping and Commission	11 Clay Street
Lash's Bitters Co		1721 Mission Street
Laymance, M. J	Real Estate	1214 Broadway, Oakland
LeBallister Duncan, The Co.	Fire Insurance Men	1306 Broadway, Oakland
Legallet-Hellwig Tanning Co	Wool Pullers	6th Avenue South
Lengfeld's Pharmacy		272 Post Street
Levenson & Co	Wholesale Wooden and Willow Ware	33 Front Street
Levy, Jules & Bro.	Wholesale Laces	16 Sansome Street
Levy, Henry	Wholesale Butchers	45 Kearny Street
Levy, Schweitzer & Co	Wholesale Butchers	1412 Bush Street
Lezynski, Fred L	Manufacturers' Agent	704 Market Street
Liebes, H. & Co.	Furriers	167 Post Street
Lietz, The A. Co.	Surveying and Nautical Instruments	632 Commercial Street
Lippman Bros., Inc	Modern Department Store	2590 Mission Street
Liverpool, London & Globe Ins. Co		444 California Street
Lombard & Son	Real Estate, Loans	Monadnock Building
Long, J. T	Wholesale Butcher	Call Building
Long Syrup Refining Co		8th and Brannan Streets
Loveland, Col. H. D	Vice-Pres. International Mercantile & Bond Co	767 Monadnock Building
Lundstrom Hat Works, The		1178 Market Street
Luscombe & Isaacs	Corsets	32 Battery Street
Lyon & Hoag	Real Estate	636 Market Street
Lyons, Charles	Tailor	771 Market Street

MacGregor, C. M		460 13th Street, Oakland
Macondray Company	Commission, Insurance	149 California Street
Magnin, I. & Co	Ladies', Children's and Infants' Wear	Grant Avenue and Geary St.
Mailliard & Schmiedell	Commission and Manufacturers' Agents	300 Front Street
Malm, C. A. & Co	Manufacturers Trunks, Suit Cases	266 Bush Street
Marine Trust & Savings Bank		100 Market Street
Marks, A.	Mercantile Guide	270 Valencia Street
Marks Brothers	Ladies' and Children's Wear	831 Market Street
Marshall-Newell Supply Co	Hardware	146 Steuart Street
Marston, Frank W	Real Estate	244 Kearny Street
Marye, Geo. T., Jr.		467 O'Farrell Street
Maskey Candy Co		32 Kearny Street
Masow & Morrison	Contractors and Builders	Monadnock Building
Matson Navigation Co		268 Market Street
Maydwell, The Co.	Manufacturers' Agents	Sheldon Building
Mayhew, F. E. & Co	Customhouse Brokers	510 Battery Street
McDonnell, S. A. & Son	Pharmacists	Powell and Geary Streets
McLaren, Goode & Co	Accountants	519 California Street
McLean, L. D. Co.	Grocery and Household Goods	1158 Sutter Street
McLeod Mercantile Co	Manufacturers' Agents	265 Bush Street
McNear, G. P.		2-12 Main Street Petaluma
McPartland & Reich	News Stand	Ferry Building
Meese & Gotfried Co	Machinery	55 Main Street
Meiji, The	Oriental Art	1205 Sutter Street
Metten & Gebhardt	Tanners	135 Trumbull Avenue
Metzger & Franklin	Brokers	58 Second Street
Meyer, Frederick H	Architect	Humboldt Bank Building
Meyers, J.	Wholesale Butcher	California Market
Micheletti, P. Co.	Butchers	512 Davis Street
Mills, Miss Emma T.	School of Dressmaking	121 Geary Street
Mitsui & Co	Commission and Shipping	Merchants Exchange Bldg.
Monarch Oil Refining Co		90 Clay Street
Monotti-Larimer Co.	Wholesale Dairy Produce	32 Page Street
Montague, W. W. & Co.	Stoves, Tinners' Stock, etc.	557 Market Street
Moore, C. C. & Co	Engineers	99 First Street
Moore-Watson Dry Goods Co		Bush and Sansome Streets
Morgan & Allen Co	Manufacturers' Agts. Silverware and Cutlery	150 Post Street
Morgan, L. & Co	Millinery	2530 Mission Street
Morgan, W. & Co	Heating and Ventilating	Monadnock Building
Morrison, William H.		Phelan Building
Morse, C. C. & Co	Seeds, Bulbs and Plants	48 Jackson Street
Moss, S. A.	Mining	Alaska Commercial Bldg.
Motoyoshi Studio		2009 1/2 Fillmore Street
Mott, Frank K. Co.		1060 Broadway, Oakland
Mount Shasta Mineral Springs		6th and Bryant Streets
Murdock, C. A. & Co	Printers, Publishers and Bookbinders	68 Fremont Street
Murray & Ready	Employment Agency	11th and Market Streets
Mutual Engineering Co		1580 Bryant Street
Mutual Savings Bank		Mutual Savings Bank Bldg.
Myers, R. & L. Co	Jewelers' Supplies	717 Market Street

Napa and Sonoma Wine Co	California Wines and Brandies	10th and Mission Streets
National Ice and Cold Storage Co		266 Market Street
Natomas Consolidated of California		Alaska Commercial Building
Neustadter Brothers	Wholesale Men's Furnishing Goods	1st and Mission Streets

Nevada Gypsum, The Co.		Pacific Building
New Alcazar Theatre		Sutter and Steiner Streets
Newman & Levinson	Dry Goods, Etc	Stockton and O'Farrell Sts.
Nippert, Paul M. & Co., Inc.	Fire Insurance and Surety Bonds	244 Kearny Street
Noble, W. R. & Co.	Real Estate	Sacramento, California
Nolan Drayage and Warehouse Co		625 Howard Street
Nolan-Earl Shoe Co	Wholesale Shoes	727 Mission Street
Nonotuck Silk Co	Silk and Cotton Thread	515 Market Street
Nordman Brothers	Wholesale Jewelers	150 Post Street
North American Mercantile Co.		318 Front Street
North Point Warehouse		Mason and Bay Streets
Norton Tanning Co., The		312 Clay Street
Nozaki Brothers	Shipping and Commission	323 Sacramento Street
Nutting, S. E. & Co.	Butchers	California Market
Nye & Nissen	Wholesale Produce	16 California Street

O'Connor, Moffatt & Co	Dry Goods, Etc	Post and Kearny Streets
Odeon Cafe		Market and Eddy Streets
Okada & Ichida Co	Importers and Exporters	323 Clay Street
Okubo, Dr. I	Dentist	1765 Sutter Street
Oliver, F. S.	Attorney	Humboldt Bank Bldg.
Olsen, J. J. & Son	Restaurant	Market and Front Streets
O'Rourke-Eubanks Hat Co		785 Mission Street
Orpheum Co.		O'Farrell, nr. Stockton St.
Otis Elevator Co		Beach and Stockton Streets
Owl Drug Co.		611 Mission Street

Pacific Box Factory, Inc		Clay and Front Streets
Pacific Cereal Association		Bay, nr. Taylor Street
Pacific Coast Coal Company		Merchants Exchange Bldg.
Pacific Coast Glass Works		7th and Irwin Streets
Pacific Coast Paper Co		545 Mission Street
Pacific Coast Steamship Co		112 Market Street
Pacific Coast Syrup Co		713 Sansome Street
Pacific Guano & Fertilizer Co		268 Market Street
Pacific Jupiter Steel Co		Postal Telegraph Building
Pacific Mail S. S. Company		384 Flood Building
Pacific Metal Works		153 First Street
Pacific Mutual Life Insurance Co		Shreve Building
Pacific Portland Cement Co		Pacific Building
Pacific Refining & Roofing Co.		Monadnock Building
Pacific States Savings & Loan Co		569 California Street
Pacific Surety Company		401 Sansome Street
Pacific Syndicate Co.	5, 10, 15 and 25c Store	889 Market Street
Pacific Tank & Pipe Company		318 Market Street
Pacific Tool & Supply Co		Fremont and Mission Streets
Pacific Trunk & Bag Co		317 Front Street
Paige, H. L.		128 Sutter Street
Palace Hotel Company		California and Mason Streets
Paraffine Paint Co		Merchants Exchange Bldg.
Parcells Safe Co	Agents Diebold Safe and Lock Co	575 Market Street
Pasquale, B. Co.	Military and Society Goods	115 Post Street
Patek, F. & Co.	Butchers	916 Larkin Street
Patrick & Co.	Rubber Stamps	560 Market Street
Patton, Chas. L.	Attorney	Claus Spreckels Bldg
Payne's Bolt Works		133 Howard Street
Payot, Stratford & Kerr	Stationers and Printers	62 Fremont Street
Peck-Judah Co., Inc.	Information Bureau	789 Market Street
Pelton Water Wheel Co		Monadnock Building
Petaluma & Santa Rosa Ry. Co		Petaluma, California
Petersen, Jacob	Proprietor Alameda Cafe	7 Market Street
Pfister, J. J. Knitting Co.	Knitted Goods	739 Market Street
Phillips, M. & Co.	Rice Importers and Exporters	62 Pine Street
Phœnix Packing Company	Dried Fruits and Raisins	16 California Street
Pierce Arrow Sales, The Co.		330 Van Ness Avenue
Pierson, Roeding & Co	Electric Railway and Transmission Equip't	407 Monadnock Building
Pioneer Automobile Co		901 Golden Gate Avenue
Pippy, Col. George H	Columbia Dairy	Humboldt Bank Building
Pischel, Dr. Kaspar	Eye, Ear, Nose and Throat	Butler Building
Pitts, That Man	Stationery, Etc	771 Market Street
Plummer, Geo. F. & Co.	Ship Grocers	54 Steuart Street
Plummer, W. P	Manager Mrs. Elsie A. Drexler	611 Claus Spreckels Bldg.
Poetsch & Peterson	Tanners	2112 Army Street
Polk-Husted Directory Co.		906 Broadway, Oakland
Pollitz, Edward & Co.	Stock Brokers	419 California Street
Pope & Talbot	Lumber	Foot of Third Street
Port Costa Milling Co		280 Battery Street
Potter, E. E	Insurance	576 Sacramento Street
Price, Waterhouse Company	Public Accountants	Alaska Commercial Bldg.
Punnett Bros.	Map Publishers	333 Kearny Street

Radke & Company	Jewelers	219 Post Street
Ransohoff, L.	Suits and Cloaks	1655 Van Ness Avenue
Rapp, John & Son	Beer Bottlers	8th and Townsend Streets
Realty Syndicate, The		1218 Broadway, Oakland
Redlick-Newman Company	Furniture	2200 Mission Street
Reid Brothers	Architects	Call Building
Rhine & Co., Henry	Candy Manufacturers	19th and Bryant Streets
Richards, W. W	President National Publishing Co	Albany Block, Oakland
Risdon Iron Works		Steuart and Folsom Streets
Rochdale Wholesale Co., Inc.	Wholesale Grocers	228 Commercial Street
Roebling, John Sons & Co.	Wire Rope and Wire	624 Folsom Street
Rogers, W. J	Wholesale Lumber	477 Monadnock Building
Rogers & Stone Co.	Real Estate and Loans	30 Montgomery Street
Rooch, J. W	Dental Depot	135 Stockton Street

Roos Brothers	Outfitters	Market and Stockton Sts.
Rosenberg Bros. & Co.	Dried Fruit	153 California Street
Rosenblatt Company, The	Wholesale Wines and Distillers	300 Second Street
Rosenfeld, John & Sons	Shipping and Commission	Merchants Exchange Bldg.
Rosenthal's, Inc.	Shoes	151 Post Street
Roth, Blum & Company	Provision Packers	50 California Street
Rothschild, John & Co.	Wholesale Grocers	11 Spear Street
Rothschild & Haydenfeldt, Inc.	Wholesale Jewelers	150 Post Street
Royal & Queen Ins. Co.		122 Sansome Street
Rudgear-Merle Co.	Iron and Metal Beds	Bay, Stockton and N. Pt. Sts
Rulofson, A. C.		Monadnock Building
Russell Cream Co.		Bush and Polk Streets
Russell & Irwin Mfg. Co.	Hardware	Commercial Building
Safety Rubber Heel Co.		325 Bush Street
Saito, T. Co.	Importers and Exporters of Rice	1531 Buchanan Street
Salch, George C. & Co.	Manufacturers' Agents	743 Mission Street
Salles & Chicorp	Wholesale Butchers	628 Montgomery Street
Sanborn, Vail & Co.	Stationers	847 Mission Street
Sanders & Co. Copper Wks.		Beale and Howard Streets
San Francisco Breweries		240 2d Street
San Francisco Bridge Co.	Dredging and Contracting	865 Monadnock Building
San Francisco News Co.		747 Howard Street
San Francisco Pioneer Var. Works		816 Mission Street
San Francisco Savings Union		California and Montg. Sts.
San Francisco Stove Works		244 Townsend Street
Savings & Loan Society		Montgomery and Sutter Sts.
Saylor, Wm. H.		36 Commercial Street
Scharlach Hat Co.	Wholesale Hatters	777 Mission Street
Schilling, C. & Co.	Wholesale Wines and Liquors	20th and Minnesota Streets
Schindler, H. B.		172 Spear Street
Schmidt Lithograph Co.		2d and Bryant Streets
Schmitz Pharmacy, Val.	Pharmacist	1845 Polk Street
Schussler, M. & Co.	Wholesale Jewelers	Mutual Bank Building
Schussler Brothers	Art Goods	326 Grove Street
Schwabacher-Frey Stationery Co.		14 Sutter Street
Scott, George B.		Pine and Stockton Streets
Scott, Irving M., Estate of		409 Postal Telegraph Bldg.
Scott, Magner & Miller, Inc.	Hay and Grain	40 California Street
Scribner's Sons, Chas.	Publishers	717 Market Street
Security Savings Bank		316 Montgomery Street
Selby Smelting & Lead Co.		Merchants Exchange Bldg.
Seller Brothers & Co.	Stoves and Hardware	14 Spear Street
Shannon-Conmy Printing Co.		509 Clay Street
Sherman, Clay & Co.	Music and Piano House	Sutter and Kearny Streets
Ship Owners & Mer. T. B. Co.		Green Street Wharf
Shirpser & Samuels	Opticians	895 Market Street
Shoup, Paul	Assistant Gen. Passenger Agt. S. P. Co.	Flood Building
Shreve & Company	Jewelers and Silversmiths	Shreve Building
Siebe Bros. & Plagemann	Wholesale Liquors	432 Battery Street
Sierra Art & Engraving Co.		343 Front Street
Sing Chong Company	Chinese and Japanese Bazaar	601 Dupont Street
Sing Fat Co., Inc.	Oriental Bazaar	California St. and Grant Ave.
Singer Sewing Machine Co.		855 Pacific Building
Slack, C. A.	Proprietor Hotel Kirk	Haight and Stanyan
Slade, S. E. Lumber Co.		112 Market Street
Sloane, W. & J.	Furniture, Carpets and Rugs	224 Sutter Street
Smith, B. J.		Alaska Commercial Bldg.
Smith Bros.	Books, Art and Stationery	462 13th Street, Oakland
Solari's, Inc.	Restaurant	354 Geary Street
Somers & Company	Hay, Grain and Mill Feed	37 California Street
Sonoma Express Company		Jackson Street Bulkhead
Sonoma Land Company		68 Post Street
Sorenson, J. A. & Co.	Jewelers and Opticians	715 Market Street
South End Warehouse Co.		631 Second Street
Southern Pacific Milling Co.		Merchants Exchange Bldg.
South S. F. Packing & Provision Co.		407 Front Street
Spanish American Food Company		180 Erie Street
Spencer Plumbing Co.		231 Stevenson Street
Splivalo, C. R. & Co.	Yosemite Flour Mills	956 Bryant Street
Spreckels, J. D. & Bros.	Shipping and Commission	90 Clay Street
Spreckels, Richard	Western Sugar Refining Co.	Potrero
Springfield Fire & Marine Ins. Co.		306 Kohl Building
Standard Gas Engine Co.		10 California Street
Stauffer Chemical Co.		624 California Street
Steiger & Kerr Stove & Foundry Co.		18th and Folsom Streets
Sterling Furniture Co.		1049 Market Street
St. Francis Carriage Co.		Polk St. and Broadway
Stocker, W. W.	Druggist	1280 Page Street
Stone, E. B. & A. L. Co.	Contractors	401 Phelan Building
Stoney, Rouleau & Stoney	Attorneys	250 Montgomery Street
Straus, Louis	Wholesale Clothing	658 Mission Street
Strauss, Levi & Co.	Wholesale Dry Goods	Pine and Battery Streets
Sullivan, Sullivan & Roche	Attorneys	Humboldt Bank Building
Sumner, W. B. & Co.	Hides and Leather	220 Townsend Street
Sunset Grocery Co.		1105 Broadway, Oakland
Sussman, Wormser & Co.	Wholesale Grocers	134 Spear Street
Sutro & Company	Bankers and Brokers	412 Montgomery Street
Swan The Painter	Painter	Jessie, near 4th Street
Swiss-American Bank		622 Montgomery Street
Taffinder, W. G.	Pacific Underwriter	Merchants Exchange Bldg.
Taft & Pennoyer	Dry Goods, etc.	Clay & 14th Sts., Oakland
Taravellier & Cames	Liquors	2787 Mission Street
Tay, Geo. H. Co.	Plumbers and Steam Fitters	917 Mission Street

Templeman, Henry	Lumber, Shipping and Commission	42 Market Street
Therein, J. H. & Co.	Manufacturers Laundry Supplies	64 Clementina Street
Thieben Jos. & Co.	Manufacturers' Agents	585 Mission Street
Thierbach, Chas. F. & Co.	Coffee, Tea and Spices	443 Battery Street
Thomas Parisian Dyeing & Cleaning		27 10th Street
Thompson, F. W	General Agent	872 Market Street
Thompson Estate, R. R		Merchants Exchange Bldg.
Thompson-Kelly Co.		1727 O'Farrell Street
Titus, Louis	Attorney	Balboa Building
Todt & Peters	Housesmiths	322 Main Street
Tozer Company, The	Interior Decorators	1525 Pine Street
Troy Laundry Machinery Co		581 Mission Street
Truman, I. J.	Real Estate	703 Humboldt Bank Bldg.
Tubbs Cordage Company		Kohl Building
Typewritorium	Typewriters	225 Montgomery Street

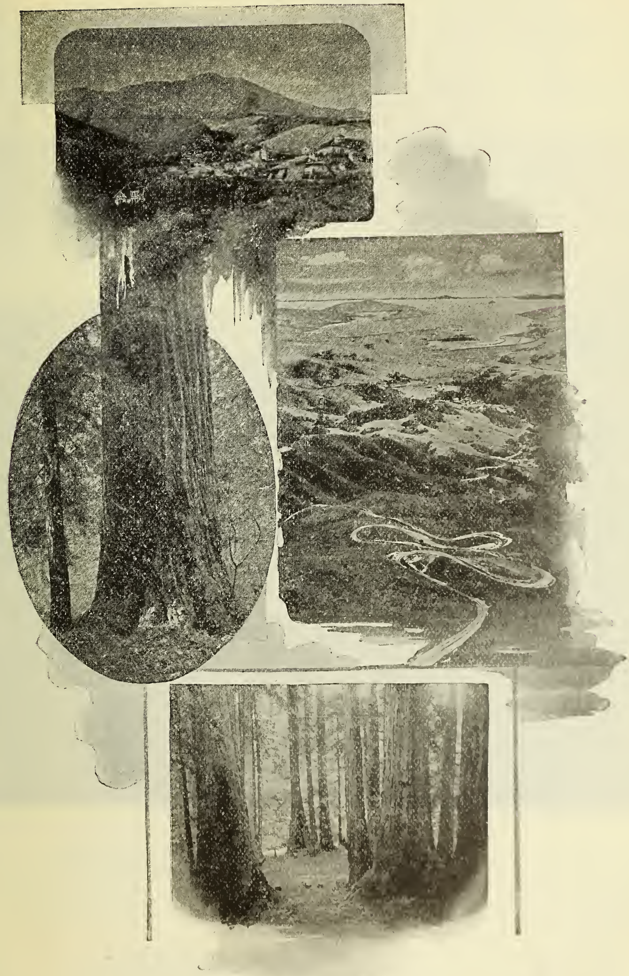
Uhl Bros., Inc.	Wall Paper	717 Market Street
Union Fish Co		Foot of Spear Street
Union Ice Co		354 Pine Street
Union Iron Works		Potrero
Union Lithograph Co		741 Harrison Street
Union Lumber Co		Crocker Building
Union Oil Co		Mills Building
Union Pacific R. R. Co		42 Powell Street
Union Transfer Co		Ferry Building
Upham, Isaac Co	Stationers, Bookbinders	104 Battery Street
Uri, F. & Co	Wholesale Butchers	1847 O'Farrell Street

Valley Cafe		105 Market Street
Van Arsdale Harris Lumber Co		5th and Brannan Streets
Van Bergen, N. & Co	Wholesale Liquors	338 Washington Street
von Goltzheim, Morritz Stach	Steelite Safety Powder Co	First National Bank Bldg.
von Schroeder, J. H.		743 Capp Street

Waffle Kitchen, The		723 Market Street
Wakelee Drug Co		58 Market Street
Walter, D. N. & E. & Co	Carpets	O'Farrell and Stockton Sts.
Ward, E. G.	Oyster Depot	California and Polk Streets
Ward, W. H.		1723 San Pablo Ave. Oakland
Waterhouse & Price Co	Building Materials	59 Third Street
Waters, R. J. & Co.	Commercial Photographs	717 Market Street
Weber, C. F. & Co	Church, School and Theater Furniture	365 Market Street
Weinstock, Lubin & Co	Dry and Fancy Goods	Post and Fillmore Streets
Wells Fargo Express Co		2d and Mission Streets
Welsbach Company	Gas Mantels	351 McAllister Street
Wertheimer & Pearlstein	Juvenile Clothing	Grant Ave. and Union Sqr.
West Side Lumber Co.		Flood Building
Western Builders Supply Co		680 Mission St.
Western Creameries Co		53 California Street
Western Engineering & Constr. Co		Monadnock Building
Western Fish Co		517 Washington Street
Western Foundry		Main and Harrison Streets
Western Laundry Machinery Co		58 Fremont Street
Western Meat Co		6th and Townsend Streets
Western Photo Supply Co		82 Third Street
Western Sugar Refining Co		90 Clay Street
Western Transfer & Storage Co		217 Front Street
Western Woodworking Co		666 Guerrero Street
Westinghouse Electric & Mfg. Co		165 Second Street
Weston Basket & Barrel Co		Third and Berry Streets
Wetmore, Bowen & Co	Wines	42 Davis Street
White Brothers	Hardwood Lumber	Spear and Howard Streets
White, J. E.	Attorney	Monadnock Building
White Lumber Co., L. E		Balboa Building
White Sewing Machine Co		612 Van Ness Avenue
White Star Laundry Co		385 8th Street
Wichman, Lutgen & Co	Wholesale Liquors	431 Clay Street
Williams & Surryhne	Real Estate	128 Sutter Street
Williams, Dimond & Co	Shipping and Commission	310 Sansome Street
Williamson, W. F.	Attorney	Crocker Building
Williar, H. R	Paper	Chronicle Building
Wilson Brothers & Co	Lumber	324 Berry Street
Winslow, C. R. & Co	Agents Rubber Shoes	658 Howard Street
Winton Motor Carriage Co		Grove St. and Van Ness Ave.
Witter Medical Springs		Westbank Building
Werner Brothers		5 Fourth Street
Wolf, Edward Co	Wholesale Cigars	161 California Street
Wolff, Wm. & Co	Importers	52 Beale Street
Wolf & Sons		Drumm and Washington Sts.
Worden, C. E.		First National Bank Bldg.

Yates & Co	Paint Manufacturers	762 Folsom Street
Yawman & Erbe Mfg. Co	Filing Cabinets	716 Mission Street
Young, C. D		Los Angeles

Zelinsky, D.	Painter and Decorator	338 Larkin Street
Zellerbach Paper Co		Battery and Jackson Streets



MT. TAMALPAIS AND VICINITY.

INTENSIVE FARMING.